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The National Society of Professional Engineers

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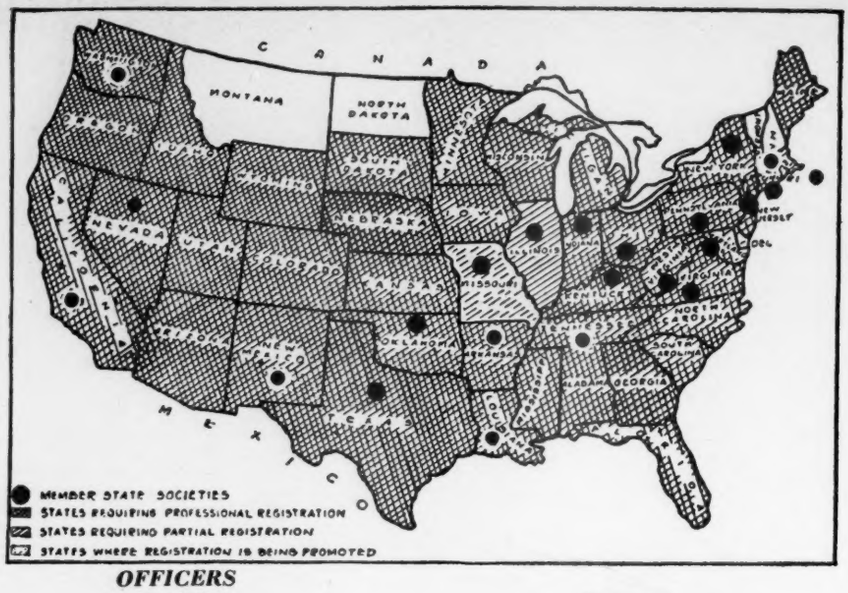

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Peace on Earth, Good Will to Men!

As members of the engineering profession approach the Christmas season, we automatically review the world events of the year drawing to end. We look forward to the year just beginning, contemplating what it will bring.

Of one thing we are certain, next year's trend will be toward wars, and not away from them. So long as individuals controlling the destinies of nations must retain their power to rule by wholesale murder of political opponents, by intimidation of the masses, by religious and racial persecution, by constantly wooing their own partisans with a succession of territorial grabs, by teaching the young that warring is the most honorable of activities, and that to die in battle is the supreme reward; just so long will nations and peoples be at one another's throats.

Christianity's great annual celebration, Christmas, brings pause for sober thought. "Peace on earth, good will to men?" When?

No great single earthly force controls the why's and wherefore's of human behavior. Present turmoil is only a passing phase in earth's destiny. The leavening process will continue for ages to come.

Christianity and the other peaceful religions have not as yet penetrated into the hearts of a large enough ratio of the earth's population, or left an adequate conviction on some of those elevated to leadership.

But the Engineer, by the very nature of his profession, the very essence of his chosen calling, stands on the side of peace and good will.

His very existence is dedicated to the protection of life and property. No true engineer can have within him the desire to harmfully destroy.

Engineering is a constructive profession, dedicated to the advancement of human progress, to the bringing about of order in human relationships, to reason and tolerance in human behavior.

The engineer is playing his part toward the goal of Christianity.

"Peace on earth, good will to men!"

ROBERT HALL CRAIG

The Economic Status of the Engineer

Address at Open Forum on Economic Status of Engineers

Tennessee Valley Section, American Society of Civil Engineers
Knoxville, Tennessee, November 11, 1938

By WILLARD S. CONLON,
Executive Secretary, National Society of Professional Engineers

Civilization depends for its advance not only on our expanding knowledge of social as well as the physical sciences, but on our ability to translate the accumulated knowledge and experience to the welfare of society.

The engineering profession made its great contributions, but those who controlled the economic status of the profession cared little whether or not the overall or ultimate benefits derived from these contributions were of benefit to society. Their immediate and only concern apparently was with a generous and early return on their investments.

The National Society of Professional Engineers program proposes to return the control of the engineering profession to its legitimate practitioners.

Approximately 90 percent of the members of the National Society of Professional Engineers are members of one or more of the technical societies. Therefore, insofar as N.S.P.E. is concerned there is no conflict. The technical societies were created, (some as far back as eighty-six years ago) to promote the Arts and Sciences of the particular branch of the profession they represent. They have done a splendid technical job in their respective fields.

A group of engineers, representing four state societies of professional engineers, recognizing that unification of the profession was necessary before adequate organization could be obtained to effect the necessary adjustments, met in 1934, and organized the National Society of Professional Engineers. That there was need for such organization is attested by the fact that within three years additional state societies were organized, now totaling twenty-three units with membership of over 6,400 engineers. These are all qualified professional engineers; not a heterogeneous group.

N.S.P.E. is a federation of state societies whose affiliation is dependent upon their restriction of membership to licensed professional engineers from the states having professional engineer license laws and to engineers having the equivalent qualifications in states not yet having professional engineers license laws. It acts as a guiding and coordinating agency in national affairs, and it has already demonstrated its ability to promote progressive legislation and to fight legislation inimical to society and the profession. Its affiliated state societies are organized along the lines of the political structure of the particular state. and the State Society in turn organizes county or town chapters, as the case may be. Matters affecting the profession must be referred to it only through, and as a result of, action by the state societies. Current information on all matters affecting the economic and professional status of the engineer is broadcast through the AMERICAN ENGINEER, published by the society.

Dues are collected by the state societies, and range from seven to sixteen dollars a year, depending upon the particular state. In most instances the dues range from $8.00 to $10.00 a year. The state society transmits $4.00 a year to N.S.P.E. for each affiliate member.

The total budget of the Society for the current year up to September 30 was approximately $16,000, and the total cost for operation per capita was $2.78, which included the publication and distribution of the AMERICAN ENGINEER magazine as well as the promotion and organization of additional units and the furtherance of the entire program.

Some of its accomplishments are: Exposing the half truths and propaganda as to conditions of unemployment in the profession; exposing unethical competition of others with practicing engineers; forcing some so-called "engineering schools" out of business; campaigning against the so-called "free engineering services"; cooperating with United States and State Civil Service Commissions on classification, grades and schedules of salaries for engineers.

One large manufacturer has adopted "See Your Consulting Engineer" for its advertisement caption.

Authorities recently ruled that deputy tax commissioners were practicing engineering in evaluating and appraising properties and henceforth shall be licensed professional engineers. Commissioners and deputy commissioners of assessments in a large city are now required by law to be licensed professional engineers or architects, which will eventually result in more equitable adjustment of rates and taxes to the benefit of these communities. Thus N.S.P.E. is attacking the problem on all fronts.

Taxes, national and local, can be cut considerably through efficient management of affairs if engineers wield properly the power which is theirs to command through adequate organization.

In an address before the Council of The American Society of Mechanical Engineers, March 15, 1928, titled, "The Economic Status of the Mechanical Engineer, Can It Be Improved?",* T. H. Normile, at that time Research Engineer, Department of Public Works, New York, presented the results of a survey that he had made, using Bureau of Census Reports, this was way back in 1928. In comparing the rate of increase in persons in certain professions as compared with the rate of increase in population between 1900 and 1920, as follows:

"Civil engineers and surveyors increased in number 148%
Mechanical and electrical engineers 348%
Mining engineers 130%
Designers, draftsmen, inventors, etc. 273%
And that altogether the engineering forces increased 232%
While the medical profession increased only 13%
And the legal profession increased only 7%
While the increase in population was ..... 39%"

What a contrast! Was it natural, or was it regulated?

I am sure that these figures are sufficient to cover the point without further remarks. They speak volumes to those who hold their responsibility to society and the profession above their own personal ambition.

A more recent study titled, "Engineering as a Career," which will appear in the November issue of the AMERICAN ENGINEER, prepared by Dr. D. B. Steinman, past president of N.S.P.E., and based on a survey of the engineering profession unemployment problem, compiled by the Labor Department a few years ago, indicates that there are 200,000 living engineer graduates between the ages of 25 and 64:

100,000 or 50% are unemployed or have been forced through economic reasons to drop out of the profession;

40,000 or 20% are employed as draftsmen or other subordinate technical positions;

60,000 or 30% are employed in positions of professional status *(Continued on page 23)*

National Council of State Boards of Engineering Examiners

Report of The Committee on Qualifying Experience October 17, 1938

Editor's Note—N.S.P.E. is vitally interested in the activities of the National Council of State Boards of Engineering Examiners and hereby prints the report of the committee on qualifying experience.

Presenting A Situation: Not Attempting A Definition

COMPILED BY
Charles F. Scott, *Chairman*
N. W. Dougherty, H. M. Jones, E. K. Ramsey,
R. E. Warden

THE EXPERIENCE PERIOD

The Experience Period following graduation is a vital factor in the career of the individual engineer and in registration procedures.

To the recent graduate this experience period is significant for developing competence and for revealing personal qualities.

In development, as it brings him into contact with practical operations and problems in the "School of Experience"; it is the period of opportunity for personal adjustment to the conditions of life, for making effective the knowledge and training of the past, and for laying the foundation for a future career. It is also the opportunity for self-revelation and self-appraisal; can he assimilate experience in his own growth? Can he utilize his natural abilities and his educational training in developing the capabilities and the judgment which fit him for responsible engineering practice? It may disclose that he is best qualified for success in sub-professional work or in semi-engineering fields.

To the Engineering Registration Board the response of the individual to his surroundings and opportunities in this experience period is a most effective prognosticator in segregating promising professional engineers from others. Reaction to the test of experience indicates whether a man has the qualities the professional engineer should have. It indicates his intellectual habits and attitudes, his methods of thinking and doing, his facility in combining theory and practice, his ability to handle new problems, to visualize and to plan, his capability to develop as shown by the use he has made of opportunities for self-development. From the record of what he has done and how he has done it, the Board has the best basis for projecting his performance curve into the future, as indication of his competency to practice professional engineering.

"QUALIFYING EXPERIENCE"

1. Qualifying for what?

For registration as a Professional Engineer.

2. What qualifications are necessary?

Normally, an acceptable diploma and experience satisfactory to the Registration Board are necessary for license to practice professional engineering.

3. What is "professional engineering"?

According to the Model Law, "the practice of professional engineering . . . includes any professional service . . . wherein the public welfare or the safeguarding of life, health or property is concerned or involved, when such professional service requires the application of engineering principles and data."

4. What is "a professional engineer"?

According to the Model Law, he is ". . . a person who is qualified by reason of his knowledge of mathematics, the physical sciences and the principles of engineering, acquired by professional education and practical experience to engage in the practice of professional engineering." Hence the qualification involves the combination of knowledge and experience.

Conditions vary widely in different branches of engineering—e.g., civil and chemical; they vary in the same branch—e.g. electric power and radio; they vary with individuals, both as to personal aptitudes and characteristics and to the type of work they do. The common element is a combination of technical knowledge and practical experience which qualifies for the practice of professional engineering. The principle is clear; its application transcends arbitrary rules and calls for balanced judgment.

5. What are the specific requirements for registration?

Normally, according to the Model Law, an acceptable diploma and a "specific record of an additional four years or more of experience in engineering work of a character satisfactory to the Board, and indicating that the applicant is competent to practice professional engineering."

6. What are the features which are to be satisfactory to the Board?

a. The character of the experience;

b. The length of the experience period, "four years or more";

c. What constitutes "engineering work" of a satisfactory kind;

d. Whether the experience indicates competency to practice "professional engineering."

The first three items aid in determining the fourth, which is the vital essence of Registration.

7. What is the significance of "four years or more" for the experience period?

That the period is to be adequate for acquiring the experience, but not less than four years (or as specified by State law). The minimum of four years should be deemed sufficient only in exceptional cases where the experience has been unusually broad in scope and progressively better in character and notably high in both average and final level.

8. What does "character of experience imply?

It implies that some kinds of "experience" are not satisfactory; for example, routine performance which does not invoke the application of technical knowledge and which does not contribute to development of qualities which indicate competency to practice professional engineering.

"Character means *quality,*" not mere *quantity* of experience measured in time (though a minimum is fixed), or jobs, and the quality must indicate competency.

9. What character of experience is satisfactory?

Broadly, that which indicates competency to practice professional engineering, and the ability to do." Specifically, the following items are pertinent:

a. Knowledge and Experience. The function of the Registration Board is to determine whether the development of the young engineer qualifies him for registration. The factors are knowledge (usually already attested by a diploma) and experience. The School of Experience should be a laboratory for the application of principles to

problems and the solving of problems by applying principles. Knowledge and experience should become integrated so that they interact and produce something far beyond the arithmetical sum of textbook information and the doing of routine tasks. What should result is that facility and judgment which characterize the competent engineer. But some emerge with a diploma certifying to things forgotten and unused, and a list of jobs.

The all-important element in Registration is the evaluation of experience, and that is left to the judgment of the Board—"it shall be of a character satisfactory to the Board."

b. Previous Preparation. The same "experience" may be profitable or not, depending upon previous preparation.

c. Two Attitudes. On the same job one may exercise judgment in directing the work, while another may simply follow plans and specifications to the letter. Again, in design one may use judgment in choice of standards while another may make slavish use of them.

d. Application of Principles. Qualifying experience is not derived from work which does not require or involve the application of engineering principles and theories, although the work itself may require skill and may be necessary in professional activity; e.g., ordinary surveying, drafting, mechanical calculations or routine cost accounting. Acceptable experience must involve the intelligent practical application of the physical natural laws of science.

e. Duration. Experience should be sufficient in amount so that repetition produces (1) thorough understanding of the principles involved and (2) the development of judgment as to the method of analysis and solution.

f. Activity and Attitude. Two phases of experience are (1) the actual activities performed and (2) the attitude of the individual and his progressive development in performing them. What he does is of less consequence than how he does it.

g. Indifference and Alertness. There is bound to be a dividing line between those who are indifferent to development and those who are bound to achieve against all obstacles, if professional engineering is to develop on the basis of higher standards. If high uniform standards are adopted and maintained, young men will direct their study and training to meet them.

h. Development; Limitations. Has there been a progressive advancement in the application of engineering data and principles so that the applicant is capable of taking charge of some branch of engineering work? Does he recognize his limitations as well as his ability, and will he decline to accept a commitment that he is not qualified to fulfill?

i. Qualifying Evidence. A Board must have details of an applicant's duties and responsibilities. It is not primarily concerned with titles—they may be very deceptive. "What did you do? What engineering data or principles did you apply? What engineering judgment and discretion did you exercise? What was the scope and importance of the project? What is the ability to devise and to plan? What is the evidence of progressive responsibility? What initiative and originality and courage, and what personal force for overcoming difficulties have been shown? What aid to progress has been secured through reading and study, through membership in an engineering society, through correspondence school or night-school courses?" Questions such as these indicate the kind of information useful to the Board.

j. Essential qualities. What are the essential qualities of the Professional Engineer? Does the applicant possess these qualities? Does his past performance give promise of their continuing development? Having listed these essential qualities, the Board may scan the evidence—diplomas and examination results and experience records—to ascertain whether the applicant possesses them. Jobs and positions and things done are significant only as to the qualities essential to the professional engineer which resulted.

Note—The foregoing points of view re Qualifying Experience (with one or two exceptions contributed by members of the Committee) give a composite of an idea, an ideal. To reduce it to a rigid formula would be deadening. No two young engineers are alike.

10. How do tests preliminary to granting of state certificates differ from engineering school tests prior to awarding graduation diplomas?

The Faculty has had daily observation of the student; its examinations are on specific curricula; it can compare individuals in the same group. Tests usually aim to evaluate past achievements toward an assigned goal. (Some also aid the student by indicating where he is weak and where he is strong.)

The Examining Board has no prior acquaintance with the individual, and experience has not come according to a uniform schedule, but differs in engineering groups—e.g., civil and mechanical—and is sometimes obtained in a fortuitous succession of jobs; it cannot readily compare individuals on the basis of uniform environment. The evaluation of the applicant should indicate his capability for future achievement. Unfortunately references are often from well-wishers, unappreciative of the significance of experience and the qualifications of the professional engineer. The applicant usually fails to understand what is wanted, and does not furnish the specific information needed.

Yet the Board is to determine whether the past career of a particular candidate gives satisfactory evidence that he qualifies for a continuing career as a professional engineer.

11. For non-graduates what constitutes "Qualifying Experience"? Conditions are essentially the same for non-graduates as for graduates. Scientific knowledge and "theory" may have been acquired in a different way, but the requisite capability for using principles in practice is essentially the same for both. The discipline in self-study, and the active attitude involved (in contrast to passive acquisition by some college students) is often excellent preparation for a fruitful career.

12. Can written examinations show the qualifying value of experience? Questions may be of the textbook type which a college senior should answer; or they may be a test of what has been acquired since graduation, such as ability to take an actual situation and formulate the problem involved; and facility in analyzing problems and in applying principles in solving them. One may be able to manipulate handbooks and construct and solve equations, but has he a commonsense judgment in understanding what they mean? Simple questions may reveal the presence (or absence) of engineering quality; e.g., if the question "how much more may one invest in a device to operate for 20 years in order to reduce the annual operating cost by $50?" brings $1000 as the answer, it may show arithmetical ability but a lack of the engineering-economic sense—a lack which disqualifies for engineering responsibility. (This is an actual and not a hypothetical case.)

13. As Professional Engineers often administer projects involving the cooperation of many engineers, should the ability to organize and guide others be considered in determining "satisfactory experience?"

In general, registrants who possess administrative ability are eligible for the higher ranks in their profession; they have desirable qualities for making them "competent to practice professional engineering." On the other hand, there are many competent individualists.

(Continued on page 24)

PROFESSIONAL EMPLOYEE DEFINED UNDER FEDERAL WAGES AND HOURS ACT

Editor's Note: We publish here reprints from the *Engineering News-Record.* Let Us Hear Your Views

PROFESSIONAL IS DEFINED UNDER WAGE-HOUR LAW

A definition of a professional employee, was issued Oct. 10 by Elmer F. Andrews, administrator of the federal fair labor standards act. Professional workers, as defined by the administrator, are exempt from the wage and hour requirements of the act, which went into effect Oct. 24.

A professional, as defined by Andrews, is any employee who is customarily employed in work which is (1) predominantly intellectual and varied in character as opposed to routine mental or physical work, and (2) requires the consistent exercise of discretion and judgment both as to the manner and time of performance as opposed to work subject to active direction and supervision, and (3) is of such a character that the output produced or result accomplished cannot be standardized in relation to a given period of time, and (4) is based upon educational training in a specially organized body of knowledge as distinguished from either general academic education or from an apprenticeship or training in the performance of routine mental or physical processes in accordance with a previously indicated or standardized formula.

UNION EXPRESSES OPINION

The executive council of the Federation of Architects, Engineers, Chemists and Technicians, CIO, announced Oct. 25 its belief that "technical employees" are not bona fide professionals under the meaning of the act and are therefore subject to the wages and hours provisions. Organizational Director Marcel Scherer said that he had conferred with Commissioner Andrews and is "confident that his interpretation guarantees engineering employees the protection of the wage and hour law." All locals of the FAECT have been told to approach employers for payment of time and half for work over 44 hours.

PROFESSIONAL WORK DEFINED

Just before the federal fair labor standards act went into effect last week, Administrator Elmer F. Andrews, himself an engineer by training, issued a definition of what constitutes professional work under the act which should be of wide interest to the engineering profession even though its direct effect on engineers at the present will not be widespread.

Application of the labor standards act is limited to companies whose business is of an interstate character, hence practically all engineers on construction operations are unaffected. Engineers employed by electric utilities, by large manufacturing plants and by the producers of construction materials come under the act. Whether those employed by the large steel fabricators come under the exemption for construction operations is open to question. However, as Administrator Andrews favors amplification of the federal act through adoption of supplemental state acts, all the present exemptions may soon disappear, just as they are disappearing under state acts supplementing the Wagner labor relations act.

Few if any engineers or engineering employees will be affected by the minimum wage standard of 25c an hour, but the working time limit which requires the payment of time and one-half for overtime in excess of 44 hours a week, regardless of pay considerations, ultimately may have wide application, as it is through overtime work that engineers are most widely exploited.

Mr. Andrews' definition of professional work under the new act was given in our news pages last week. It is significant in that it helps to clarify the question of what constitutes professional work, a question that was raised soon after the passage of the Wagner labor relations act and which comes up for discussion periodically. *As now interpreted the act sets off to the professional class only those whose training and ability is such that they can demand adequate compensation and need no protection as to minimum wages or maximum hours.* On the other hand, because it does set off only a small group, this interpretation stops any attempt by unscrupulous employers to push the professional classification so far down as to include a class of men who should have the protection of the fair-standards act or the labor-relations act, but who would be excluded from its protection were they to be classified as professional.

The new definition ultimately will put many licensed engineers into the non-professional class and so will not be very acceptable to those who would have all licensed engineers classified as professional men, *but it is to be hoped that the professional societies will not make an issue of it as logic is all on the other side.*

Those who in the past have argued that all licensed engineers should be classed as professional men overlook important factors. Possession of a license to practice engineering does not make the possessor a professional man if the term "professional" has any significance other than as a convenient way for distinguishing between the technician and the engineman. The license is simply a certification to the public that the holder has the necessary qualifications to design safe structures. Many graduate engineers who have taken out a license against the day when they will be filling a position in which a license is required are now engaged in routine work in the design departments of large corporations which require only limited use of their engineering training. One such man may be working alongside a man of equal or even metter engineering training who has not taken out a license. To say that the former is a professional man because he holds a license and that the latter is not because he is unlicensed is just as absurd as to say that for the same reason one is an engineer and the other is not. Yet much of the current thinking as to the significance of a license leads to such conclusions.

The definition of professional work which Mr. Andrews has promulgated will help to eradicate the confusion that this loose thinking has brought about. But most important, it will leave the great majority of employed engineers free to seek protection of the labor relations act or the labor standards act when and if they feel they need that protection. Failure of a man to be classified as engaged in professional work under the labor standards act in no way affects his standing as an engineer.

It's Our Business

If a large number of people who were not engineers were asked, "What is a requirement of a good engineer?" it is my opinion that most answers would be, "He must be right." The answers might vary from, "He must know his stuff" to "He must be a good mathematician," but all of them would either state directly or imply that he must be right. This engineer acceptance by the world as a whole is not accidental. It is the outgrowth of centuries of experience with the products of engineers, leading to general confidence in them for sound technical judgment. We who are engineers can think back to our college days and reflect upon the fundamentals drilled into us. Our solutions to problems were not matters of comparative opinion, and they were graded on the basis of right or wrong. We still ask ourselves the same question when we review our solutions to our daily problems, "Am I right?" It's our business to be right.

But how much thought is given by engineers to their problems which confront them as a profession, problems whose solutions are vital to them as individuals particularly as they affect their future freedom, problems which apparently are not interesting because on the surface they offer no technical challenge? You as a member of AAE know that within our ranks much thought has been given to them, particularly in the face of the shift of our young men to labor unions. We do not quarrel with labor unions except that they reach too far when they classify professional men with skilled or unskilled labor. If you have seen professional men parading the streets with signs on their shoulders, not because they were radicals but in self defense, I am sure you have experienced that same sickening feeling that came over me when I have meditated on how general such a situation might become. If there is something which our professions does not make clear to the younger engineer, something which does not give him confidence in the future, we must find either the cause of the misunderstanding or the solution of the problem. It's our business to meet the challenge.

Let me point out that no one man is going to solve these problems by himself. It will take the united effort of the profession as a whole. For any individual to sit back and do nothing when a few minutes spent writing a letter will provide something tangible contributing toward a solution is not right—is not characteristically engineering. I welcome a flood of letters, which will either revise or augment the lines along which we are now working. It is our desire to express the true cross-section of engineering thought and apply it in a most effective manner. That's *our* business.

E. C. SHUMAN
President

Reprint from "The Professional Engineer"

Connecticut Engineers, 1000 Strong, Welcomed To New York World's Fair

TRIP COMMITTEE VIEW OUTDOOR AMPHITHEATRE UNDER CONSTRUCTION

Left to Right: Frederick P. Stabell, Chairman Meals & Entertainment; Richard C. Lipps, Director of Publicity; John Coolidge of the N.Y.N.H. & H.R.R. who arranged transportation; W. J. Mahan, Executive Chirman; E. T. Nettleton, President, Connecticut Society Civil Engrs.; H. J. Tippet, Secy. Connecticut Society Civil Engineers; Allen Hubbard, President Connecticut Society of Professional Engineers; L. C. Smith, Secretary, Connecticut Society of Professional Engineers.

Notes on the World's Fair Inspection Trip—October 12, 1938. Hall of Communications—World's Fair Grounds— 11:00 A. M.

Mr. W. J. Mahan: [Chairman of Executive Committee and a Member of the C.S.P.E. Board of Directors.]

On behalf of the Executive Committee, Connecticut Engineers Inspection, New York World's Fair, I bid you welcome. We wish to express our appreciation and gratitude to the World's Fair Corporation for their many courtesies, their close cooperation with the work of our committees and for making the World's Fair Grounds, buildings, equipment and much of their personnel available to us, thereby making it possible for our many members and friends to secure first hand information on these engineering projects.

To the Connecticut Society of Civil Engineers and the members of the Connecticut Society of Professional Engineers, we wish to express our deep appreciation for their close cooperation.

To the officers and members of the American Association of Architects; the American Society of Mechanical Engineers; the American Institute of Electrical Engineers; the American Society of Civil Engineers; the American Society of Metals; the International Association of Electrical Inspectors; the American Chemical Society; the Engineers Clubs of Bridgeport and Hartford; the Foremen's Club of New Haven, the General Contractors Association of America; the Connecticut Road Builders Association; and to the many other technical trade and civic organizations through whose cooperation this gathering of about one thousand men was made possible, we express our gratitude.

The purpose of this trip is to make it possible for the engineering fraternity and their many friends to inspect this gigantic engineering project well in advance of its completion, thereby gaining first hand information on many of the outstanding engineering accomplishments during the period of construction.

Mr. John P. Hogan—Chief Engineer of the New York World's Fair, will tell you of the many outstanding engineering features and of the arrangements which have been made for your visit at this marvel of engineering progress.

Colonel Hogan:

Members of the Connecticut Society of Professional Engineers, and the Connecticut Society of Civil Engineers and all members of other engineering societies.

You are now in an exhibit building which is unfinished because the exhibitors will occupy the space back of the columns and will furnish their own booths. This is the way that the Fair finishes its own exhibit buildings, leaving the rest of the work to be done by the exhibitors.

You may be interested in the way this engineering work or construction work is done. We have a Board of Design which passes on all designs and originates all designs, except engineering structures. After the design is prepared, this design is turned over to the Engineering and Construction Department which prepares all working drawings.

The finished design is turned over to the Construction De-

(Continued on page 22)

Do You Know?

Pertinent Facts Concerning the Professions

1. The Medical Profession

By D. B. STEINMAN
Past President National Society of Professional Engineers

Do you know that:

All of the 77 medical schools in the country require every student to have completed *two or more* years of college work before entering the medical school. (33 require 2 or 2½ years, 39 insist upon 3 years, 1 requires 4 years, and 4 demand graduation with a baccalaureate degree, before admission to the medical school.)

40 States and the District of Columbia require *every* student to have two or more years of college work before entering medical school, and 3 States require one year.

77 percent of all recent medical graduates were *college graduates* with a baccalaureate degree before entering the medical schools.

It is not unusual that a thousand students will apply for admission to a medical school into which but one hundred will be admitted.

In 46 States, only the graduates of medical schools approved by the American Medical Association are eligible to take the State examinations for admission to practice.

Only 3 medical schools not approved by the American Medical Association remain in operation.

97 percent of those admitted to practice medicine in this country are graduates of medical schools approved by the A.M.A.; only 3 percent are graduates of unapproved medical schools (admitted primarily in 3 States).

10 of the 77 medical schools offer only the first two years of the normal 4-year course.

15 of the 64 approved 4-year medical schools require a hospital interneship of one or more years before the *degree* M.D. is granted.

17 States and 2 Territories legally require a hospital interneship before admission to medical practice.

98 percent of all medical graduates interne before entering practice.

Since 1925, in *all* of the States and Territories, admission to practice has been by *examination* (following completion of all other requirements, viz. premedical college work, graduation from an approved medical school, and hospital interneship, as required).

The examinations given by the *National* Board of Medical Examiners, organized in 1915, are accepted for admission to practice without further examination by the licensing bodies of 43 States and 4 Territories.

The American Medical Association, with membership restricted to licensed physicians, has over 100,000 members. It serves its membership in professional, educational, and legislative relations.

35 percent of all recent medical graduates limit their practice to a specialty.

The number of physicians per million of population in this country has been progressively reduced in the past 30 years (1900 to 1930) from 1740 to 1250, a reduction of 28 percent.

The first medical school in this country was started at Philadelphia in 1765, followed by one at King's College in New York in 1768.

In 1906, there were 162 medical schools in this country, many of inferior standards. (Previously there had been over 400 proprietary schools for the teaching of medicine.)

In 1910, following a campaign of investigation and publicity by the American Medical Association, 34 of the medical schools surrendered their charters and discontinued instruction; and 38 of the institutions agreed to join the list of those already requiring one or more years of college work before admission.

In 1916, the Association of American Medical Colleges decreed that no institution was eligible for membership unless it required of its entering students two full years of college preparation. Sixteen State Boards of Examiners cooperated by refusing to license candidates who could not furnish a minimum record of two years of preliminary college study.

By 1916, the number of medical schools in the country had been reduced from 162 to 90. In 1928, there were 80 schools. In 1933, only 77 remained, of which only 74 are approved, with only 64 giving the complete 4-year course to graduation.

In 1904, the number of students in the medical schools was 28,142. By 1920 it was reduced to 13,798,—a reduction of 51 percent. In 1936, the total number was 22,564—or 20 percent less than in 1904.

In 1904, the number of medical students graduated was 5747. In 1922, the number was only 2529, a reduction of 56 percent. In 1936, the number graduated was 5183, or 10 percent less than in 1904.

Of the 39 medical schools insisting upon three years of college work before admission, 3 admit such candidates under the provision that their colleges confer on them the baccalaureate degree at the end of one year in medical school.

The 705 approved hospitals in the U. S. can provide 6759 interneships, as compared with 5183 graduates multiplied by the average number of years of interneship.

In 1851, eleven States had laws regulating medical practice, but these were repealed under pressure of the expanding demand for physicians coupled with the proprietary nature of the medical schools.

By 1879, six States set up Boards of Examiners for admission to medical practice. By 1895, practically all States had such examining bodies, and in 1925 admission to practice medicine was by *examination* in *all* of the States and Territories. It took the medical profession 50 years to accomplish this objective.

For license to practice medicine, in 1904 only 10 States required high schol graduation, no States required premedical college work, only 5 States required graduation from an *approved* medical school, 36 States required graduation from *any* medical school, no States required interneship, and 45 States required licensing examinations; in 1925, 46 States required high school graduation, 43 States required pre-medical college work, *all* States required graduation from a medical school, 46 States specified graduation from an *approved* medical school, 12 States required internship after graduation, and *all* States required licensing examinations.

The number annually *passing* the medical licensing examinations has remained fairly uniform, from 5693 in 1905 to 5841 in 1935, with a low figure of 4060 in 1920.

The percentage *failing* the medical licensing examinations has progressively diminished from 20.7 percent in 1905 to 9.1 percent in 1935, reflecting improved selection and preparation of medical students.

In 1922, only 81 percent of those admitted to practice medicine were graduates of *approved* schools; in 1935, over 97 percent were graduates of *approved* schools. (Approved by the American Medical Association through its Council on Medical Education and Hospitals).

The National Board of Medical Examiners maintains the following requirements: graduation from a four-year high school; completion of two years of acceptable college work, including physics, chemistry, biology, and a foreign language; graduation from a medical school approved by the A.M.A. Council on Medical Education; completion of at least one year of interneship in an approved hospital or laboratory; and the passing of the National Board examinations.

The examinations given by the National Board of Medical Examiners are in three parts: The first part is a written examination dealing with six basic sciences, and may be taken at the end of the second year in medical school. The second part, which is also written, deals with general medicine, surgery, obstetrics and gynecology, neuro-psychiatry, and public health. The third section is a practical oral examination in the various clinical branches of medicine.

The examinations given by the National Board of Medical Examiners have exerted a salutary influence upon State boards and have become a model for the State examinations.

The annual number of applicants taking the National Board examinations in medicine has progressively increased from 28 in 1922 to 598 in 1935, and a total of 4840 have received the certificate of the National Board (accepted by 43 States and 4 Territories).

The American Medical Association had its inception at a national convention of delegates from medical societies and colleges called in 1846 by the Medical Society of the State of New York. The purpose of the convention was to improve the existing deplorable standard of medical training. A year later, a permanent organization of the A.M.A. was effected. In 1901, the A.M.A. was reorganized with parallel reorganization of the State Medical Societies.

Under the present system in the American Medical Association, when a physician becomes a member of his local unit, the county society, he automatically becomes a member both of the state society and the national body.

The constitution of the American Medical Association states: "The object of this Association shall be to federate into one compact organization the medical profession of the United States, for the purpose of fostering the growth and diffusion of medical knowledge, of promoting friendly intercourse among American physicians, of safeguarding the material interest of the medical profession, of elevating the standard of medical education, of securing the enactment and enforcement of medical laws, of enlightening and directing public opinion in regard to the broad problems of state medicine, and of representing to the world the practical accomplishments of scientific medicine, with power to acquire and hold property, publish journals, etc."

The headquarters staff of the American Medical Association is composed of about 500 employees.

The work of the American Medical Association is carried on by 11 Councils or Bureaus, each covering a respective field of public and professional relations, such as: the Council of Pharmacy and Chemistry (to protect physicians and the public from fraudulent medicines), the Judicial Council, the Bureau of Medical Economics, the Bureau of Health and Public Instruction, and the Council on Medical Education and Hospitals.

Approximately two-thirds of the medical profession are enrolled members of the American Medical Association.

Over 48,000 physicians in the U. S. limit their practice wholly or principally to a specialty, such as ophthalmology, obstetrics, gynecology, laryngology, otology, rhinology, neurology, surgery, proctology, urology, dermatology, pediatrics, radiology, tuberculosis, orthopedic surgery, pathology, bacteriology, public health, etc.

Qualification for recognition of a physician as a specialist is handled by Boards set up by each group, without legal status but under recognition and regulation by the American Medical Association.

For recognition of a physician as a specialist, the standards now set by the Advisory Board include: Satisfactory moral and ethical standing in the profession; membership in the American Medical Association; graduation from an approved medical school; completion of one or more years of interneship in an approved hospital; a period of study after the interneship of not less than three years in recognized clinics, dispensaries, hospitals, or laboratories; and an additional period of not less than two years of study and practice.

No man is a physician until he is licensed by his State Board.

(Acknowledgment: Data excerpted from a report "Professional Recognition in the Field of Medicine" prepared by A. D. Hinckley for the Committee on Professional Recognition of Educational Council for Professional Development.)

New Jersey to Hold Its Annual Convention January 13 and 14

Preparations that had their genesis in February, 1938, immediately after the 1938 Convention, have been speeded up with the approach of the 1939 Convention dates of the New Jersey Association of Professional Engineers and Land Surveyors.

This year, the Essex County Engineering Society is the host to the State Convention and 43 of its members are actively serving on the Convention Committee. Each succeeding year, since March 1935, when the State Association last convened in Newark, has produced a bigger and better convention, developing at Jersey City in January 1938 into a two day, well rounded program.

Plans for the 1939 Convention anticipate, among other things, a registration of at least 2,500; a minimum attendance of 600 at the annual dinner—entertainment—dance, and a convention issue of *The New Jersey Engineer* of 75 pages, with a circulation of 5,000.

The interest that women have exhibited in the past has prompted the Convention Committee to pay particular attention to the comfort, welfare and entertainment of the ladies for the entire period of the Convention. Provision has been made to accommodate a larger number than usual and all of the ladies are urged to enjoy the hospitality to be extended them at the 1939 Convention.

Considerable interest is being evinced in the 1939 Convention because past conventions of the New Jersey Association of Professional Engineers and Land Surveyors have conclusively demonstrated that not only do they serve the welfare of the engineer members, but they enhance the prestige of the profession throughout the State and afford an excellent opportunity for engineers, manufacturers and distributors to meet together in the discussion of common problems.

The theme of the 1939 Convention will be "Safety in Engineering" and it is believed that this topic not only will be of intense vital interest at this time to every engineer but will arouse considerable public interest as well. It is hoped that out of the Convention will come not only a clearer conception on the part the engineer must play in promoting safety but that the State Association will be the vehicle by which the Convention discussions may be translated into action on behalf of the citizens of the State of New Jersey.

Below is a tentative program for the two day Convention to be held at the Hotel Robert Treat, Newark, N. J.

PROGRAM

January 13....	Morning.....	Business Meeting
	1:00 P.M.....	Luncheon
	Afternoon	Technical Papers
	Evening.....	Smoker
January 14....	Morning.....	Technical Papers
	1:00 P.M.....	Luncheon
	Afternoon	Annual Meeting of State Association and election of officers.
	Evening.....	Banquet, entertainment and dance.

LADIES PROGRAM

January 13....	Morning.....	Shopping Trips—Newark Stores
	1:00 P.M.....	Luncheon with Men at Hotel Robert Treat
	Afternoon	Trips of interest—Locations to be announced later.
	Evening.....	Theatre parties—Locations to be announced later.
January 14....	Morning.....	Shopping trips—Newark Stores
	1:00 P.M.....	Luncheon with Men at Hotel Robert Treat
	Afternoon	Card party at Hotel Robert Treat
	Evening.....	Banquet, entertainment and dance, Ballroom at Hotel Robert Treat

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Indiana Convention Held This Month at Indianapolis

The second annual convention of the Indiana Society of Professional Engineers was held in Indianapolis, December 16. The sessions, this year, were held at the Hotel Lincoln. Engr. M. G. Johnson and his convention committee arranged an interesting program for the event.

The one day program opened with a breakfast meeting of the executive board and convention committee at 8:00. Registration was from 9:00 to 10:00, on the 14th floor of the hotel, and the first general session was at 10:00 in the Travertine Room. Pres. S. G. Cohen and Vice-Pres. Frank Schutt presided at the morning business sessions of the society.

The afternoon program of addresses by prominent engineers and educators was presided over by Engr. D. L. Warren, President of the St. Joseph Valley Chapter, and Engr. Z. B. Campbell, President of the Calumet Chapter. The engineers were welcomed to Indianapolis by Mayor Walter C. Boetcher. De Witt S. Morgan, Supt. of the Indianapolis Public Schools and for many years Principal of Arsenal Technical High School, spoke on "Economy of Human Resources." T. A. Dicus, Chairman of the State Highway Commission of Indiana, discussed "The Engineer in Public Service" and Dr. Donald B. Prentice, President of Rose Polytechnic Institute of Terre Haute, had as his subject "The Engineer and the Abundant Life."

The evening banquet session, which concluded the convention program, was held at 6:30 in the Travertine Room of the hotel. Engr. Clyde A. Walb, President of the Anthony Wayne Chapter, presided at this session with Fred Cunningham, former President of the Indiana Highway Constructors, as toastmaster. The principal speaker was Engr. John W. Wheeler, Assistant Chief Engineer of the Chicago, Burlington & Quincy Railroad and former member of the State Highway Commission of Indiana.

SOCIETY MEMBERS ELECTED TO COUNTY POSTS

Sixteen members of the Indiana Society of Professional Engineers were elected to the office of County Surveyor in their respective counties at the November election. Those chosen, out of a total of 21 members nominated at the primary election earlier in the year, and the counties represented are:

Adams	Walter Gilliom
Allen	W. C. Duell
Clark	K. W. Barnes
Hamilton	R. Horney
Hancock	G. C. Winslow
Henry	W. Sorrell
Jackson	Chas. Mater
Jennings	Chas. T. Butler
Johnson	Ivan Craggs
Lake	Edwin F. Schoenbeck
Morgan	Wilbur F. Smith
Randolph	A. B. Purdy
Tippecanoe	A. F. Buerkle
Vanderburgh	W. M. Saunders
Vermillion	John A. Boce
Wabash	Asher W. Gray

In addition to members of the Society, 38 other registered engineers were also elected as County Surveyors, and will serve in Bartholomew, Benton, Blackford, Boone, Cass, Clay, Dearborn, Decatur, DeKalb, Delaware, Elkhart, Floyd, Gibson, Grant, Hendricks, Howard, Jasper, Jay, Kosciusko, LaGrange, LaPorte, Lawrence Madison, Marshall, Miami, Owen, Porter, Posey, Pulaski, Putnam, Ripley, St. Joseph, Steuben, Tipton, Vigo, Warren, Wayne, and White Counties.

Out of a total of 92 counties, 54 are to have the office of County Surveyor filled by a registered professional engineer, while in 38 counties, the elected official is not licensed to practice professional engineering. Included in this latter group are several of the largest counties of the state.

ENGINEERS ELECTED TO LEGISLATURE

Two registered professional engineers were elected to the lower house of the State Legislature at the November election. Engr. Balthasar Hoffman of Valparaiso, and a member of the Society, will represent Lake and Porter Counties and Engr. C. Omer Free of Vincennes will be Knox County's representative.

Indiana Engineering Council Announces February Convention

The 1939 Annual All Engineers Meeting of the Indiana Engineering Council has been announced for February 11 at the Hotel Severin, Indianapolis. The following preliminary details have been released by Engr. Homer Rupard, Secy.-Treas. of the Council. The main meeting and dinner will be in the roof garden, 13th floor. Small group meetings will be in special rooms on the 12th floor. A men's lounge will be established in the interconnecting rooms on the 12th floor and a ladies' lounge will also be established.

OPEN FORUM

There are some things connected with the Registration of Professional Engineers in various States (including Pennsylvania) and with the Definition of "Engineer" and the training of engineers, all three matters being closely related, which have not been explained to my satisfaction. In invite the Society's attention to these, for there was no time to debate them properly during the recent convention of the National Society of Professional Engineers in Pittsburgh. What I said on that occasion is presumably a matter of record: what I say here is not a repetition, but deals with other matters.

When the Profession of Engineering was first recognized in Europe, and for nearly a hundred years thereafter, the concept of what was an engineer was fairly clear. There were such things as Chemists in those days too, but there was no clear concept of such a thing as a Physicist.

The existence of Physicists is something the Society must reckon on. They are a far more fundamental problem than Surveyors and the Physicist is just beginning to emerge as the overshadowing influence in all engineering and chemistry. Engineering is merely, in modern times, the application of Physics in practice. Such names as Steinmetz and Langmuir naturally occur as examples, but there are Physicists of less notoriety, behind most of the modern advances.

The existence of Chemical Engineers is recognised, and they have an important field; but the field of the Physicist is vastly more extensive and vastly more fundamental, and touches Engineering at far more points. The definition of Civil Engineering given by the Institution of Civil Engineers a hundred years ago, would embrace most of the Physicists of today. Yet the Physicist meets a peculiar difficulty in this country.

In the law courts of New York, it has been proposed to deny the status of expert witness on scientific matters other than medical, to men who are not Registered Professional Engineers. Now it happens that on many scientific points, of direct practical importance, the best informed men in the country are Physicists, not engineers in the restricted popular sense of the term. One of these men, the best informed, in certain phases of glass manufacturing, in this country or abroad, decided in view of the legal threat, to apply for Registration. There was no question of his eminence, for he was an international authority, but for a time the Registration Board demurred, his record showing him to be a Physicist rather than an engineer. That has now been straightened out, but the same problem will arise with others.

My own organization is a small one, about a dozen strong. Half, or thereabouts, are university graduates and some have doctors' degrees. The men I find most useful are those who have a sound grasp of physics, more physics than one gets in an engineering course. These men do research work, but they also design machines. Are they to be prohibited ultimately from registering as Professional Engineers? Obviously a man can be both a Physicist in the academic sense and an Engineer in the popular sense, and the difficulty may resolve itself. But the existence of the problem is hereby called to your attention.

In this same connection—the problem of training professional engineers of the next generation so that they will have as adequate a grasp of the modern world as possible—I am puzzled by what seems to be the law in Pennsylvania. As I see it, a man cannot be registered as a Professional Engineer until he has been in responsible charge of design or operation of engineering projects. At the same time, he is prohibited from practicing design or operation in a responsible capacity until he has been registered. Thus presumably he must learn his profession outside the state, and Pennsylvania will never be able to get engineers from within its own borders.

Let me add here a corroboration of Mr. Sheridan's views, that undergraduate training should stay out of specialist fields. I have on my staff a man who was graduated as a Ceramic Engineer at Illinois. He is an excellent engineer, because he has learned the subject himself; but what the University taught him is so near to nothing that we can disregard it entirely. Ceramics is properly a post-graduate subject.

Let me also add that one of the difficulties evidently encountered by Mr. Sheridan and others, as judged by their talks at the convention arises from the inadequacy of high school training in this country. The mass production of half educated children by the high schools prevents those who might become professional Engineers, from getting the "Humanities" adequately during high school years. This passes on to their college years the necessity for training them in languages and elementary mathematics.

There is no difficulty whatever, so far as the boy himself is concerned, in seeing that he knows one or two foreign languages quite well by the time he leaves high school: he can also perfectly well master the elementary parts of algebra, geometry, trigonometry, analytical geometry and calculus; the elements of mechanics; some physics; and the general cultural subjects of geography, history, and the English language, by the time he is 16. The difficulty arises from the attempt to force a similar course on boys who can never be more than drug store operators or small time politicians.

FRANK W. PRESTON, PH.D.
Butler, Pennsylvania

A VOICE FOR ENGINEERS

Roswell Canfield, writing for the August-September issue of The AMERICAN ENGINEER (p. 5) takes exception to views expressed in the June 30 issue of *Engineering News-Record* in an editorial which was reprinted on p. 13 of the same issue of The AMERICAN ENGINEER. The editorial expressed the opinion that the engineering profession should not attempt to maintain an agency in Washington to speak for the profession, that all the profession should have in Washington is an ably staffed listening post. Mr. Canfield says, "We are told that the record of history indicates engineers can have but little hope of uniting nationally . . . as the record shows partisan position is more powerful than professional interest." Continuing, Mr. Canfield raises questions as to whether the record does show this.

May I take some space in The AMERICAN ENGINEER to give my personal views on the question Mr. Canfield raises?

The only record we have, that of the experience of American Engineering Council, does show that there are few national questions on which engineers are united. Nor does Mr. Canfield bring forward any *records* to demonstrate the contrary; he puts forward only abstract theories, stating in effect that the high professional standards for which engineers are now striving will raise them above partisan considerations, bringing them to consider all national questions from purely engineering angles.

That is fine theory, but I hope I do not live to see the day when engineers come so near to being robots, moved only by abstract scientific considerations and wholly oblivious to the personal, economic, social and political considerations that surround any question that can be dignified by calling it national.

Mr. Canfield implies that there is something reprehensible in the situation outlined in the ENR editorial in which it was stated that on most national questions engineers step out of their role as engineers and become ordinary citizens with opinions based on their own political or economic philosophy. I see nothing wrong in that.

For example, take the question of public versus private development of our power resources, a major national policy question. You will find engineers of the highest standing taking diametrically opposite stands on that subject. Is there anything wrong or unethical in their doing so? Or take such questions as perpetuation of the WPA as a means for handling relief, the establishment of more regional authorities like the TVA, or the St. Lawrence

Waterway. Engineering is involved in all, but engineers do not think alike concerning them. As the ENR editorial pointed out, few if any *national* questions are basically engineering questions about which engineers can be expected to have fairly unanimous opinions. Establishment of a department of public works with an engineer as secretary as part of a program of federal reorganization appears to be about the only national question on which engineers are in reasonably unanimous agreement, and even on that you will find widely divergent views among the engineers most directly concerned, those in federal service.

And speaking of the record, do not overlook the trouble that the engineering economics division of the American Society of Civil Engineers stirred up each time it discussed national questions. The large vote for David Coyle for president last year was a protest vote roused by statements made by the present president at the Boston meeting of the division.

There is another aspect of this question of representation in Washington which cannot be overlooked. If the profession has representatives in Washington one of whose functions is to speak for it when occasion demands, there will always be the temptation to say something occasionally to keep the organization in the limelight. Unfortunate statements by officers of the American Engineering Council were noted in the ENR editorial. Mr. Conlon's recent attack on the Case School of Applied Science (see p. 4, same issue of A.E.) is a more pertinent example. No public statement by representatives of the profession should be made on national questions of a controversial nature until the actual views of the organization have been determined in a truly representative fashion. And to do that will take a lot of time and money, and often much wasted effort, that could better be spent on purely professional matters such as aiding the young men who are training themselves to be engineers.

The national organization of engineers should be small and should be maintained chiefly to integrate the activities of the state societies. The state societies should be the strong and forceful units. It is state laws and municipal ordinances that most directly affect engineers; the profession should be organized for quick and egective action on all such matters. Sheridan, Steinman, Chapman and others have shown what can be done in this respect in New York State—which organization I know best—and that example should not be forgotten or obscured by delusions of a great national organization that will be a voice for engineers in national matters.

V. T. BOUGHTON,
Managing Editor,
Engineering News-Record

—AND STILL FURTHER

After reading V. T. Boughton's remarks concerning the few comments I had made about the Engineering News-Record's editorial in the June 30th issue of that paper, I find myself substantially in agreement with nearly all he says.

The paragraph, "That is fine theory, but I hope I do not live to see the day when engineers come so near to being robots, moved only by abstract scientific considerations and wholly oblivious to personal, economic, social and political considerations that surround any question that can be dignified by calling it national." What engineer who is an American. could possibly say anything but "Amen" to those sentiments? We all subscribe to them, only most of us are unable to phrase it so well. Just what part of a professional position does this make up? What unit in the Professional Structure is it? Are we to take from this paragraph that because individual engineers may have opposite opinions on these subjects it shall be war to the hilt between them, with no holds barred, or would it not be better to frankly discuss them among ourselves on the basis of merit from the scientific approach?

In my original remarks the preamble to the constitution of the National Society of Professional Engineers was quoted—"Recognizing that service to Society, to State and to Profession is the premise upon which individual opportunity must be builded,—

Here it appears again, three separate things, "service to Society, to State, and to Profession." "Service to State" does not mean we all serve in the same way or that we all agree on the methods or agencies used. We likely never will, moreover, the duty of the Society is to promote the participation of its members in the service of the State, both Local and National, and preparation of its membership to serve meritoriously, the State in the interest of all.

What does this have to do with "A Voice for Engineers"? Just this, every engineer should be encouraged to express his "opinions based on his own political and economic philosophy." whether he be the most humble of the profession, or its highest officer, remembering the Society does not propose, nor does its membership propose, to delegate to it any control over the economic or political ideas of its individual members, but to make available to its membership the truths involved and the scientific approach to these subjects so close to our vital interests. The Society reserves to itself the right to deny the assertions of anyone but the first to defend the right of anyone to assert.

Mr. Boughton in the last three paragraphs before summing his ideas, brings to us concrete examples of the way engineers have reacted to national economic questions. They are correctly stated. I am sure there is not a member of this society, but who has opinions on these subjects of some kind. Far from being reprehensible to express those opinions, it is my observation, it is the duty of engineers as well as all citizens to have opinions on such subjects, and not only that, but to exercise those rights of citizenship to the end that the State shall receive the benefit of his ideas, recognizing the merit contained in the Periclean or ancient Grecian idea, that service to State is one of the highest merits of man. In accordance with the merit of this service of citizen to State, transferred by State to citizen, we all prosper or sink to poverty in whatever field we may mention.

"Service to Profession," seems to me to be a separate thing. Its ends may ultimately serve Society and State, as so called, but the contact is indirect. It has to do with making the individual an excellent member of Society and State. This applies not only to the individual as such, but to the Professional Society, made up of individuals who have collective attributes. These collective attributes should not be considered as partaking of these used for partisan purposes. These should be foreign, and in my previous comments, this idea of distinct fields and attributes between partisan Politics and Professional ends, was suggested. To be concrete, I take at random from "A tentative Statement of Objectives as to June 1937" Pennsylvania Society of Professional Engineers

1. To educate the public to a realization of the professional status of the registered engineer and to secure political recognition for the profession.

7. To advance and protect the economic and professional interests of the engineer, individually and collectively, through united effort, legislation and public relations.

13. To protect the engineer against exploitation, unprofessional competition, unlawful encroachment and restriction of rights to practice.

14. To promote cooperative and fraternal relations within the profession.

19. To encourage and guide engineering pupils, engineering assistants and engineers in training.

23. To improve conditions of employment and methods of engaging engineering services.

27. To extend employment services.

28. To build up and administer a reserve fund for assisting engineers in economic distress, and to assist local unit in critical legislative campaigns on behalf of the profession.

30. To raise the standards of compensation (fees and salaries) for engineering services.

32. To encourage the membership in this Society of all eligible engineers.

These are taken without comment, from a list of 32 objectives. They are without doubt on the list of every other State Society, together with the National Society, in some form. These professional things are the things we believe, that we as engineers may expect to unite solidly on locally, in states and nationally. Using the units where they apply to our separate organizations, as we see fit, to promote our common good. The place of the National Society and its Headquarters Office as assaying to conceive leadership and responsibility in this crusade is a vital one, and should not be placed in the hands of a minor office of the Society. Therefore, let us build up a National Society, granting to it the prerogatives belonging to its field, and responsibility to conceive the leadership for the Profession of Engineers second to no other Professional Society.

ROSWELL CANFIELD, *Secretary,*
Pennsylvania Society of
Professional Engineers.

CONCERNING MISREPRESENTATION

In the August-September issue, "Old Timer" gives 12 weighty reasons why he became a member of the Professional Engineers. It would be interesting to know why he restricted himself to 12, because we can all think of many additional reasons that we have for being members. However in Reason No. 1 he speaks of preventing charlatans and impostors offering services as professional engineers and thus besmirching the record of qualified engineers. In the states where engineer's license laws are in effect and where there is a State Society of Professional Engineers affiliated with the N.S.P.E. this sort of malpractice is being effectively curtailed. This is a service of inestimable value to the entire profession.

It has been a serious legal offense for many years now for an unqualified person to represent himself as, and to practise as a doctor or a lawyer. On the other hand, before our organized and united efforts, we had no restrictions on the use of the designation "engineer" or the practise of those who wrongfully represented themselves as engineers. Nor until the licensing laws sponsored by the Professional Engineers were passed in the several states.

Heretofore sewer cleaners styled themselves "Sanitary Engineers," rat catchers became "Exterminating Engineers," salesmen called themselves "Sales Engineers" and so on *ad nauseam*. Even worse perhaps, are the cases where concerns advertise in their literature, "Return the enclosed postcard with your name and address and our *'BLANK'* engineer will call and solve your problems without any obligation on your part." Just substitute "Radio," "Tool," "Heating," "Office Equipment," "Diesel," "Appliance," "Illuminating," "Vacuum Cleaner," "Termite," etc., for 'BLANK' to get the different cases. These are worse because they ought to know better. It is usually a clear case of misrepresentation. The men they send out are not engineers, they are mechanics, store clerks, youths, etc., without adequate knowledge or experience and sometimes totally ignorant outside of the text of the advertising, and in any case they are so very far below the minimum requirements that they could not possibly qualify as professional engineers under the most liberal or lax laws. It is important, and should be most gratifying to the Profession, that this intolerable situation is being cleaned up through the activities of the several State Societies in cooperation with their State Boards and Legal Authorities. Friendly and polite efforts are used in the approach and in the majority of cases such are generally sufficient. However, backed by the law, "No" is never taken as an answer, and where any continued noncompliance is attempted, matters are carried to their legal limit if necessary and the "Iron Hand in a Velvet Glove" is found.

Following, under the caption "They Respect the Engineering Law in Connecticut," you may read the correspondence that shows the fine way in which one of our largest corporations corrected an infringement when it was called to their attention that their sales promotion department had been overenthusiastic and was using the designation "Engineer" in an absolutely misleading way. We express our appreciation of the pleasant and graceful way that the Law Department of the Radio Corporation of America has accepted the situation and we call attention to the fine work that Secretary Lewis C. Smith of the Connecticut Society of Professional Engineers is doing throughout the length and breadth of the State of Connecticut in bringing initial action in all violation cases. His earnest and painstaking work places every professional engineer under an obligation to him.

There is a form of this type of malpractice that is much harder to stop and that is the actual "bootlegging," where nothing that can be used as evidence is written or printed, but where the lawbreaker calls upon his customer or victim, represents himself as an "Engineer," and sells his services with or without his product. The difficulty here is that his "client" or customer is the only one who can give evidence against the fraud, and even if badly "gypped," he would try to cover it up rather than disclose to the eyes of the rest of the business world his gullibility. However, steps are being taken, involving the cooperation and vigilance of individual members and chapter officers, to stop this type of illegal practise and when individual perpetrators are rounded up, they need not expect the "Velvet Glove." After a few get "The Works" it will prove discouraging to those who attempt to chisel in on the profession's reputation.

—A Connecticut Contributor.

THEY RESPECT THE ENGINEERING LAW IN CONNECTICUT

Editor's Note: The following group of letters is an excellent example of "how to cooperate."

CONNECTICUT SOCIETY OF PROFESSIONAL ENGINEERS, INC.

Office of State Secretary,
904 Quinnipiac Avenue, New Haven, Conn.

Radio Corporation of America,
R. C. A. Building,
New York City, August 18, 1938.

Gentlemen,—

I have before me a postal return card offering the use of a service engineer in checking performance of a radio. This card came from the Whiting Radio Service, Bridgeport. It is understood that these cards are printed and furnished by you.

Under the present law of the State of Connecticut you are in conflict with the law if you offer engineering service without employing a duly qualified and registered professional engineer. Enclosed herewith is one of our usual forms which covers the situation.

Usually when a complaint is made I fill in the name and send it out but here I see a different situation. Therefore, it seems to me that your department where such matter originates should realize that thirty-eight states have some form of law covering engineers and engineering practice. All these have practically the same wording as is quoted in the enclosure.

I would appreciate hearing your side of this situation.

Your very truly, Lewis C. Smith, State Secretary.

ENCLOSURE.—(Regular Form for First Notice)

Connecticut Society of Professional Engineers, Inc.
Office of the President,
1109 Chapel Street, New Haven, Connecticut.

As State Secretary of the Connecticut Society of Professional Engineers it has been brought to my attention that you are practicing or advertising to practice professional engineering as defined by the State Statute.

The following quotation is taken from the Registration Act, Chapter 176-b, 1935 supplement to the General Statutes, effective January 1, 1936. "No person shall practice or offer to practice the profession of engineering in any of its branches including land surveying, or use any title or description tending to convey the impression that he is a professional engineer or land surveyor unless he shall have been duly registered or exempted under the provisions of this act."

My instructions, from the Board of Directors of the Society is to notify the person or the firm complained of. If after reasonable time has elapsed and no improvement has been made, of which I have had due notification, it is then my duty to report to the State Board of Registration who in turn should report to the Attorney General for legal action.

The State Roster showing men registered as professional engineers does not show firms in whose employ they may be and it is possible that your situation may be covered by this condition. It will be appreciated if you will send in such information which will enable us to meet the complaint with exact information.

May I hear from you within thirty days?

Very truly yours, State Secretary.

RCA MANUFACTURING COMPANY INC.

A Radio Corporation of America Subsidiary
Camden, New Jersey

RCA VICTOR
DIVISION August 24, 1938.

Mr. L. C. Smith, State Secretary,
Connecticut Society of Professional Engineers,
904 Quinnipiac Ave., New Haven, Conn.,

Dear Mr. Smith:

Your letter of August 18 to Radio Corporation of America regarding the alleged misuse of the term "engineer" has been referred to me.

I am unable to find any information regarding the postal return card which you refer to and believe that it is probably something that the local Dealer or Distributor has instituted, however, I should like to investigate the matter further and shall be very thankful if you will send me a copy or form number of the card by means of which it might be identified. Incidentally, I wonder if you could furnish me with a copy of the act which covers this matter.

Very truly yours, E. C. Cahill, Manager-Installation and Service.

* * * * *

CONNECTICUT SOCIETY OF PROFESSIONAL ENGINEERS, INC.

Office of the State Secretary,
904 Quinnipiac Avenue, New Haven, Conn.

RCA Manufacturing Company, Inc.,
RCA Victor Division,
Camden, New Jersey, August 26, 1938.
Mr. E. C. Cahill, Manager—Installation and Service.

Dear Sir,—

My letter to you of August 18th and your reply of the 24th.

Enclosed is a copy of the Connecticut State Law.

Enclosed is a copy of the advertisement referred to.

If it is essential the name of the person addressed can be given but it is unusual and does not seem pertinent.

Very truly yours, Lewis C. Smith, State Secretary.

* * * * *

RCA MANUFACTURING COMPANY, INC.

A Radio Corporation of America Subsidiary
Camden, New Jersey

LAW DEPARTMENT September 7, 1938.
Lewis C. Smith, State Secretary,
Connecticut Society of Professional Engineers,
904 Quinnipiac Avenue, New Haven, Conn.

Dear Mr. Smith:

Mr. Cahill has referred to me your letter of August 18, 1938, a copy of his letter of August 24th, and a copy of your reply.

I have investigated the situation with respect to the cards referred to in this correspondence. We have already given instructions that the words "service engineer" be removed and that in the future the word "Engineer" should not be used in this connection in any advertising material.

So far as I can find there are very few of these cards outstanding and while I cannot give you definite information, believe it probable that practically none of these are in Connecticut. I am, however, checking further and will make every effort to locate any that may be outstanding and stop further use of them.

I should like to assure you that in using this term we had no intention of using it in any way that might give the impression that we were referring to the profession of engineering. Nevertheless, we do not want to use anything that might possibly be construed as misleading, and not only will make no use of this in the future but will endeavor to withdraw any outstanding material using this term.

I shall write further when I am able to obtain full information concerning any cards that may be outstanding.

Very truly yours, J. E. Daniels.

* * * * *

RCA MANUFACTURING COMPANY, INC.

A Radio Corporation of America Subsidiary
Camden, New Jersey

LAW DEPARTMENT September 15, 1938.
Mr. Lewis C. Smith, State Secretary,
Connecticut Society of Professional Engineers,
904 Quinnipiac Ave., New Haven, Conn.

Dear Sir;

This will supplement my letter of September 7, 1938, in which I stated that we would make every effort to locate any other cards such as the one referred to in our correspondence, and stop their further use.

We have been unable to locate any such cards, and I believe that very few, if any, are outstanding. Should any others be found in use, I believe it will be because some dealer has received them some time ago and neglected to use them. I regard such a happening as improbable.

In any event, we have changed the cards by eliminating the words "service engineer" and substituting the words "service man," and have instructed the advertising and sales departments to make no further use of the term "service engineer," nor any other use of the word "engineer" unless referring to a licensed engineer.

Very truly yours, J. E. Daniels.

* * * * *

CONNECTICUT SOCIETY OF PROFESSIONAL ENGINEERS, INC.

Office of the State Secretary,
904 Quinnipiac Avenue, New Haven, Conn.

Mr. J. E. Daniels, Law Department,
RCA Manufacturing Company, Inc.,
Camden, New Jersey, September 19, 1938.

Dear Mr. Daniels.—

This will acknowledge your letter of September 15th supplementing yours of the 7th.

We will consider the matter as closed unless some further complaints are received.

We wish to express our appreciation of the agreeable and cooperative attitude taken by your company.

Very truly yours, Lewis C. Smith, State Secretary.

Engineers' Pay

Engineers, would-be engineers, fond parents of prospective engineers, as well as personnel and vocational directors would do well to study the U. S. Bureau of Labor Statistics' recent comprehensive survey of this profession undertaken at the request of the American Engineering Council. The latest release based on a study of 52,509 professional engineers, pertains to income earned during 1929, 1932, and 1934. Here are highlights:

1. In 1929, 10% of the reporting engineers had incomes in excess of $7,466; 25% earned more than $5,012; but 50% earned less than $3,412.

2. On a dollar basis, the big income cuts between 1929 and 1932 hit the two highest income groups hardest, but on a percentage basis it was the engineers at the lower end of the income scale who suffered the largest curtailment of earnings. Top salaried engineers lost about 32% in the period; lowest rung engineers, 54%. Further income shrinkage occurred in 1934.

3. The divergence in earnings between five types of engineers was most marked in the upper income ranges where the spread was as great as 35%, compared with 16% in the lowest income brackets.

4. In 1929 (disregarding age distribution) the upper 10% of mining and metallurgical engineers earned more than $9,912; the upper 10% of chemical and ceramic engineers followed with, $9,013; mechanical and industrial engineers, $8,508; electrical engineers, $7,185 and civil engineers, $6,507.

5. The civil engineers had the smallest income cuts between 1929 and 1932, ranging from 29% to 47% in different income levels; chemical and ceramic engineers fared worst with cuts of 36% to 64%.

6. All engineers showed earnings advancing with age in three distinct periods—rapidly at first followed by two periods of slower rates of increase. Maximum earnings were reached at 60 years of age.

7. Engineers with formal education appear to have the edge on those without such background so far as earnings are concerned, the spread becoming greater with advancing age.

Reprint from "Business Week."

N. Y. STATE BOARD OF EXAMINERS HAS ELECTION OF OFFICERS

The 187th meeting of the New York State Board of Examiners of Professional Engineers was held in the Regents Room, State Education Building, Albany, on November 17, 1938.

Of a total of 414 applications considered, 381 were scheduled for the written examinations, 10 were held for interviews, 16 were rejected, and 7 were approved for license.

This being the annual meeting, the election of officers was held. Virgil M. Palmer was re-elected Chairman; Norman R. Gibson, Vice Chairman; and Roy G. Finch, Secretary.

EDITORIAL COMMENT

AN INTEGRATED PROFESSION

An ultimate goal of the professional engineering movement in the United States is the establishment of an integrated profession, which means that membership in the profession and membership in the professional organization shall be identical and synonymous. This means a legal chartering of the profession, as an all-inclusive organization, for self-administration and maintenance of high standards in the interest of the public. The legal profession has already established an integrated profession in 23 of the United States, where every attorney admitted to practice is automatically and necessarily a member of the State Bar Association. In most of the Canadian Provinces, particularly British Columbia, Ontario, and Quebec, the engineering profession is integrated, and admission to the Association of Professional Engineers of the Province is a prerequisite to practice.

Now this goal has been achieved by the engineering profession in Puerto Rico. The legislature there has recently passed a law, approved May 15, 1938, creating the Institute of Engineers of Puerto Rico. Membership in this Institute and in the engineering profession will be synonymous. Every licensed engineer will automatically be a member of the Institute, and the right to practice engineering (also architecture and surveying) will be limited to the members of the Institute. Thus the engineering profession will be entrusted and charged with the solemn responsibility of administering itself for the public weal.

This legislation had the support and approval of the Acting Governor of Puerto Rico, *Engineer* José E. Colom, who is a civil engineer. An energetic worker for this legislation was Professor C. Calor Mota, Member N.S.P.E., Head of the Department of Civil Engineering at the University of Puerto Rico, and Member of the Board of Examiners of Engineers, Architects and Surveyors of Puerto Rico. He and his fellow-workers acknowledge that their inspiration in creating the Institute of Engineers of Puerto Rico was derived from the efforts and objectives of the National Society of Professional Engineers, and in turn they hope that their precedent will pave the way for similarly integrating the engineering profession throughout the United States.

By D. B. STEINMAN,

Founder of the National Society of Professional Engineers.

Minutes of Meeting of the Executive Board and Board of Trustees of the New Jersey Association of Professional Engineers and Land Surveyors, Held at the Robert Treat Hotel

NEWARK, NEW JERSEY, NOVEMBER 3, 1938

Those present included President Jay Jacobs and Engineers Andress. Francisco, Mattie, Seymour, Rice, Tilton, McKee, McInnis, Wise, Randolph, Kreuger, Kissam, Wright and Weeks.

The President made a trip to the last West Jersey Chapter meeting and expressed his appreciation at being invited. He desires to attend one meeting of each County Chapter before the year closes.

Engineer Kreuger the Deputy Commissioner of Labor, stated that a committee is being drawn up by his Department to develop a State Elevator Code and asked this Association to appoint one member to serve on this committee. He stated that elevator accidents were up 400% in 1937, that there are many old elevators that need inspection and that the duty of the new committee is to study for a revision of the present code.

President Jacobs appointed Engineer Arthur H. Windle, of the Colgate Palm Olive Peet Company, to represent the Engineers on this committee.

Engineer Kreuger, for the Labor Department, stated that another committee is being drawn up to study revisions to the present Explosives Act and is requested the Engineers to name a member to be on this committee.

Engineer Allen Trimpi, of Chatham, New Jersey, was appointed by the President to represent the interests of the Engineers on this State Labor Department Committee.

Engineer George W. Andress, Chairman of the Convention Committee, made a report for that Committee and stated that the Exhibits and Advertising solicitation is beginning to take effect and that the money is beginning to come in. There will be 42 Exhibit spaces.

Engineer George F. Randolph, Director to the National Society, rendered the following report concerning the recent National Society Convention held at the William Penn Hotel in Pittsburgh.

Mr. President and Board of Trustees, N. J. Association of P.E. and L.S.

Gentlemen:

I submit herewith a report as to the activities of the fourth Annual Convention of the National Society of Professional Engineers held at Pittsburgh, Pa., October 17, 18 and 19th.

The attendance at the Convention was very disappointing. There were registered 184 member Engineers and 249 guests (including 39 ladies) a total of 429. Nine states and the District of Columbia were represented. Pennsylvania was the first with 134 members, Ohio second with 19, New York third with 12 and New Jersey fourth with 5.

On Monday night from 6:30 to 6:45 there was broadcast over Station KDKA, a round table discussion pertaining to the Engineer and his place in industry. The following engineers participated in the broadcast: Arthur V. Sheridan, President N.S.P.E., Dr. Steinman, Past President N.S.P.E., Perry T. Ford, President-elect, N.S.P.E., Ragnar Berg, Chief Engineer, Koppser Company of Pittsburgh, C. W. Littler, Chief Engineer, Jones and Laughlin Steel Corp., Charles F. Goodrich, Chief Engineer, American Bridge Company and Dean E. A. Holbrook, Dean of School of Engineering and Mines, Pittsburgh University. It was extremely unfortunate that news of this broadcast could not have been released in time to have had notices sent to the members throughout the States.

To your Director the most important developments of the Convention was the announcement of the following appointments: Charles M. Upham, Engineer Director of the American Road Builders' Association, as Chairman of the Committee of Public Relations, P. J. Zurmuhlen of New York, as Chairman of the National Society Membership Committee and Colonel Gillmore as contact man for the establishment of a Federal Cabinet Post of Department of Public Works. Engineers Upham and Zurmuhlen addressed the Convention and outlined the proposed activities of their committees. Colonel Gillmore was not in attendance.

There were presentations of the problems confronting the Profession and the National Society and of problems confronting the State Societies and Chapters, the former ably presented by President Sheridan and the latter by S. G. Cohen, President of the Indiana Society.

There was the Treasurer's report and a report by S. I. Sacks, Chairman of the Legislative Committee. Unfortunately there were no reports by the Constitution Revision Committee nor by the Model Law Revision Committee.

There was an address by Dr. L. W. Bass of the Mellon Institute of Industrial Research on "Industrial Progress Through Scientific Research" and an address by Dr. Leonard P. Fox, Secretary of the Pennsylvania Chamber of Commerce on "Taxation and Unemployment."

There were about fifteen resolutions presented, twelve of which were referred to committees and three, pertaining to the educational requirements of the engineering student, were passed.

On the social side there was a smoker and entertainment Monday night at which time was shown the picture "Steel Man's Servant" wherein was portrayed the inner workings of the steel mills, with explanatory talk by Edwin C. Hill. A very impressive picture.

On Tuesday night there was an illustrated talk by Dr. Steinman on the subject "Romance of Bridges." An exceedingly fine and instructive presentation of the bridges of yesterday and today. This was followed by a floor show and dancing.

The banquet was to be held on Wednesday night. Your delegates did not attend.

There were several inspection tours set up but we had no time to participate.

Before reporting on the results of the New Jersey Land Surveyor problem, I wish to express sincere appreciation for the whole-hearted cooperation of the following authorized delegates from New Jersey: Ernest F. Weeks, Vice President of our State Association; Frederick J. Wright, delegate from the Passaic Chapter; Frederick D. Braun, delegate from the South Jersey Chapter; Leo K. McKee, delegate from the Monmouth-Ocean Chapter.

These men were always on the job, ever ready and willing to advise and work for the successful solution of our problem.

Our efforts however did not meet with the success we had anticipated and such being the case I feel it my duty to go somewhat at length in presenting this report.

We arrived in Pittsburgh Sunday night and started work on our problem Monday morning, at which time it was ascertained that there would be no report by the Committee on the Revision of the Constitution of the National Society. We therefore decided to present our request for a revision of the Constitution in the form of the Resolution as passed by our Board of Trustees on September 28th. In the meantime we made contact with all the State delegates in attendance and succeeded at length in securing the promises of the delegates from Connecticut, Illinois, Indiana, Pennsylvania, Ohio and New York to back us up on the floor of the Convention should we there present our case. As we had the promises of the majority of delegates present we felt that we were on our way to a successful conclusion of our problem.

At the meeting of the Board of Directors and officers of the State Societies previous to the business meeting on Wednesday, the Resolutions Committee recommended that the New Jersey Resolution be referred to the Committee on the Revision of the Constitution.

We concurred with the recommendation but stated that as the Committee would make no report at this Convention, we insisted upon placing the matter before the Convention in our own way. Accordingly at the morning session on Wednesday, Vice-President Weeks very ably presented our case for the purpose of discussion before its formal presentation at the afternoon session. A very eloquent reply was made by Dr. Steinman, in which he stressed the high and idealistic standing of the Professional Engineer and deplored the attempt to lower the standards of the National Society by the admission of the Land Surveyors to membership. From the reaction of those present it was considered by all but your delegates that we had been definitely checkmated. However, at the end of the session we retired to our rooms and there three individual papers were prepared, read and discussed. We then chose what was deemed to be the strongest argumentative parts of each paper, prepared a paper and it was presented at the afternoon session by your Director. Due to the lack of time we had no opportunity to prepare copies of this paper and the paper was requested to be left with the recorder at the convention. The paper was in the main a reply to Dr. Steinman's argument at the morning session and to the best of my memory was in part as follows:

We pointed out the fact that New Jersey was in full accord with Dr. Steinman's views as to the desire to retain the high professional status of the Engineer. That we could have the Land Surveyors accepted in the National Society as Engineers if we accepted them in our State Association as, for example, "Geodetic Engineers," but we felt that this would be but a subterfuge and entirely inconsistent. The title "land surveyor" is an honored one and of very long standing and should be retained.

(Continued on page 22)

NEWS OF STATE SOCIETIES

Editor's Note: THE AMERICAN ENGINEER will carry reports of State and Chapter meetings in the issue succeeding their receipt. We must have copy by the 20th of the month preceding the month of issue. Copy received after that date runs the risk of not being on time.

CONNECTICUT

SUMMARY OF REGISTRATION
12 months ending September 30, 1938
and
Total registration period from January 1, 1936

	Year ending September 30, 1938	Total as of September 30,1938
Applications pending 9-30-37	238	....
Received	130[3]	2091[1]
Awaiting review	....	16
Held for examination or interview	....	51
Awaiting further information	....	11
Rejected	86	209[4]
Withdrawn or applicant deceased	36	70
Total applications approved by Board	168[3]	1730[6]
Awaiting balance of fee	....	8
Certificates issued	160	1722[2]
Registrants deceased or certificates expired	14	27
Active certificates	....	....
Professional engineer only	102	1073[6]
Land Surveyor only	30[7]	111[5]
Combined certificate	27[10]	504[9]

ILLINOIS

MADISON-ST. CLAIR CHAPTER

The Madison-St. Clair Chapter I.S.E., held its second meeting of the current season on Monday, October 24, 1938.

The principal speaker of the evening was Mr. Loran D. Gayton, City Engineer of Chicago and a State Director of the Society. Mr. Gayton gave an interesting talk on the subject: "What Is the Engineering Profession Coming To?" He explained the attitude of the general public to the Engineer with a few well chosen quotations, taken from writings or talks of men in various fields of endeavor. The opinion expressed was flattering in the sense of the Engineers' unselfishness, but far from flattering in respect to his lack of interest or activity in governmental and social functionings. This opinion, according to Mr. Gayton, was entirely due to the Engineer's failure to talk about and push his profession into the spotlight of public attention.

Mr. Gayton stressed the point in his talk, that Engineers for their mutual protection, should belong to a Professional Society. This is particularly true regarding Engineers employed in industry where there is imminent danger of being drawn into a union type organization, unless represented by a professional group.

This point caused some very interesting discussion and brought out something that we wish to pass on to the other Chapters for their serious consideration. The item referred to is this: "As far as could be ascertained, the Constitution of the Society *does not authorize* the Society or its local chapters to act as representatives in a bargoining capacity for its membership." Thus, although the engineering taff of an industry could be predominantly I. S. E. members, the Society or its Chapters as local groups, could not assume bargaining powers for its members, even if requested to do so to maintain the Engineers' standing as a distinct classification in industry. In such a case, a National Labor Relations Board could possibly include the Engineers in the accepted bargaining group for the whole industry.

The discussion on this subject culminated in the following motion, made by Mr. B. C. McCurdy, former President of the Madison-St. Clair Chapter: "Moved that the State Board of Directors of I. S. E. be asked to determine the procedure necessary to enable a local chapter to engage in collective bargaining activities, and to investigate the necessity for any Constitutional revision or amendments."

In face of the tendency of Industry toward vertical collective bargaining agencies adopted by industrial employees by voting under N.L.R.B. supervision, the Madison-St. Clair Chapter feels that as a Professional Society, the I. S. E. is in a very good position to protect Engineers in Industry by action as a direct representative. If Constitutional amendment or revision is necessary, now is the time to find out and do something about it! There is no doubt in our minds that as a Professional Society, with powers to act for its membership, the I. S. E. would obtain many new members from industry all over the State.

In connection with the discussion mentioned above, the Chapter was very fortunate in that Mr. W. B. Walraven made the trip from Springfield to attend the meeting. He entered into the discussion with many interesting and helpful points and agreed with us as to the importance of the subject brought up.

Mr. Walraven also gave up some interesting information about the doings of the other local chapters of I. S. E. In this connection, the Madison-St. Clair Chapter extends best wishes to the new members at Rockford and Joliet. Greetings from the oldest Chapter, to the youngest Chapters!

CHAMPAIGN COUNTY CHAPTER

Our first meeting since last May was held on October 27. No attempt is made to convene the Chapter members during the summer months as a large percentage of them are on the faculty of the College of Engineering and are away from the community during much of the vacation period.

The October meeting was a joint session with members of the Central Illinois Section of the A. S. C. E. Such an arrangement has certain advantages to this particular chapter. Many of our chapter's faculty members are also members of the A. S. C. E., anl they have a generous quota of meetings to attend in connection with their university duties. Thus a combined meeting besides being an ideal local set-up provides an opportunty for our non-faculty members to have assocation with other engineers from neighboring communities such as Springfield, Decatur and Bloomington.

About forty participated in the dinner served at 6:30 p. m. in the Inman Hotel, through the combined efforts of Prof. R. P. Hoelscher, Secretary of the A. S. C. E. Section and Asst. Prof. W. A. Oliver our chapter's Program Committee Chairman.

Only a short time was taken up with business matters, giving our speaker the bulk of the evening. Dr. A. H. Lybyer, Prof. of History at the University drew on his resources and background as a former teacher in Roberts College in Turkey, as a member of the U. S. Commission at the Peace Conference following the great World War; from his subsequent travels in Europe in official and non-official capacities, and from his familiarity with European History to explain to us the facts and influences which brought about the recent Four-Power Munich Conference. Its meaning and potentialities as regards the present and future of Europe and the world were also considered.

If the number and variety of questions asked by members is any indication, we're safe in stating that engineers seem to have a real and active interest in world affairs and must be finding or taking time to keep abreast of the times, for all questions revealed more than a passing acquaintance with Prof. Lybyer's subject matter.

It does seem that the Committee has set some sort of precedent by providing a program that may be difficult to surpass.

MISSOURI

THE MISSOURI ENGINEER

Official Publication of Missouri Society of Professional Engineers

ENGINEERS IN SOCIETY SUBJECT OF ADDRESS

The engineers' place and duty in Society was the subject of an interesting address presented at a dinner meeting of the Mid-Missouri Section of A. S. C. E. on October 28, 1938. Engineer

E. E. Howard, of the firm of Ash-Howard-Needles & Tammen, Kansas City, presented the subject.

Mr. Howard pointed out that the engineer deals with facts and, too often, must leave emotion out of his calculations—that no amount of tear-pearking oratory would make a bridge stand up that was incorrectly designed.

The speaker reminded his audience, though, that the engineer must remember that his work is—"of, by and for the people." The engineer must take into consequence the effect of his work in the ultimate and not as an isolated problem.

In building up his case for more rational thinking in engineering, Mr. Howard pointed out the growing part that the engineer was playing in every day life. He suggested that since engineering was a learned profession, its members could be expected to do some rational thinking especially on the problems arising with increased technical development and its adoption by the public at large.

Mr. Howard pointed out the work the various state highway departments have done in educating the public to appreciate the engineer and his abilities. These departments have responded with an intelligent application of scientific planning to the development of a new force in social relationship.

The program of the meeting included a paper prepared by L. W. Pickles and presented by N. W. Remley on the material published in "Civil Engineering" and "The Proceedings" of the Society.

The civil engineering students of the University of Missouri attended the meeting as guests.

Engineer E. C. L. Wagner is president of the section and R. W. Brooks is secretary.

PRESIDENT OF A. S. C. E. VISITS IN MISSOURI

Dr. Henry Earle Riggs, President of the American Society of Civil Engineers, spoke before the Mid-Missouri Section at a luncheon meeting in Jefferson City, on November 15.

Dr. Riggs stopped in Jefferson City on his tour of student Chapters. He had previously visited Rolla where he spoke to the student groups of the School of Mines. While in Rolla, the eminent engineer participated in ceremonies dedicating the new hydraulics laboratory being built on the campus.

Prof. Harry Rubey, chairman of the Civil Engineering Department of the College of Engineering, Missouri University, presided at the meeting in Jefferson City.

Dr. Riggs also visited the student chapter at Missouri University. He planned to continue on to Topeka, Kans., before returning to New York.

TWO GROUPS STUDY PROPOSED LICENSE LAW

A meeting held on October 25 and another held on November 11, in Jefferson City, have resulted in rapid strides forward in the preparation of a license law to be introduced in the coming session of the Legislature. Both meetings were presided over by M. S. Murray. general chairman of the state-wide legislative committee.

Engineer Murray opened the meeting with some pointed suggestions as to some of the parts which were most likely to effect the passage or failure of the bill. Murray reminded those present that the primary objective was to obtain a law which contained the basic principles of licensure and still would be acceptable to the public through the legislators.

The discussion which followed by those present was concerned mainly with the suggestions put forth by Mr. Murray. It was generally agreed that the bill could be altered in detail without sacrificing the principles that are desired in its passage.

Representatives of the architects of the state agreed that the bill in its present form was satisfactory and complimented the officers of the Missouri Society of Professional Engineers on the progress theny had made in gaining cooperation of all those who were interested in the passage of a license law.

As the meeting progressed it was made clear that the changes recommended by the chairman should be made by a small committee and then submitted to legal council before reconsideration by a larger group.

AN ANALOGY

The editor of this paper has little time for reading and must by consequence, get his facts in concentrated capsules. Thus, in the Reader's Digest for November he discovered "Notes on the Birth of the Nation" by Dorothy Thompson. The article originally appeared in the Ladies' Home Journal.

In this article, the following statement was made:

"Our government, then, was founded on a belief in principle, embodied in law and in the processes of human reason and deliberation; it attempted to keep a balance between factional interests; to povide checks against usurpations, whethe by individuals, by oligarchies of the rich or even by majorities of the poor; and to leave in society itself a large area for voluntary action, whether by individuals or by groups of them."

In this paragraph, the editor can see a curious resemblance to the attempt that is being made by the engineers in this state to regulate the profession. It might be said that the bill we are proposing is the engineers' equivalet to the Constitution. It sets up a principle, in law by which the profession as a whole may regulate itself and achieve for society the benefits that the profession can give. It leaves, though, great areas for action in the various technical classifications wherein voluntary action by those chiefly affected will make for the best interests of that group.

The very action we are attempting is that provided for in the founding documents of our nation and state. We, as a group, can see the need for regulation that should not and cannot be imposed entirely by law. The law is necessary to give legal force to some actions, but the full effect will be gained only by the complete functioning of the various parts of the profession working along lines laid down by the profession as a whole.

We might go so far as to compare the proposed law to the Federal government, which is concerned with the nation as a whole. The law recognizes the engineer as such and no more. The various state governments compare with the various technical societies that will certainly play a large part in making the law a success.

REGISTRATION EXPLAINED TO ELECTRICAL ENGINEERS

(Editor's Note: The following is the text of a paper read at a recent A.I.E.E. Meeting in St. Louis.)

It is indeed a pleasure for me to have an opportunity to speak to you Electrical Engineers on the subject of "Registration of Architects and Engineers" particularly as I understand that your National Organization has not yet approved "Registration" in principle. In a way, I cannot understand this attitude, as representatives of A.I.E.E. assisted in the formulation of "A Recommended Uniform Registration Law for Professional Engineers and Land Surveyors" together with representatives of other founder Societies including A.S.C.E., A.S.M.E., American Society of Engineers, N.Y.S.P.E. and the National Council of State Boards of Engineering Examiners.

The uniform Registration Law forms the basis for most of the Registration Laws now in force in other states and is also the basis for the opposed Missouri law.

It was formulated during a ten-year period in the 1920's and revised in 1931 by representatives of the above societies in addition to A.I.M.M.E., American Inst. Consulting Engineers and several State Societies of Professional Engineers.

"In Section 2 the definition of Professional Engineering, and in Section 22 (the Saving Clause) Paragraph (d) relative to Employees and Subordinates, were changed to their present form on November 30, 1937, as the result of a letter-ballot of the same group of representatives."

With this in view, I have designed my remarks to you Electrical Engineers to acquaint you with some of the history, the contents of the proposed law, and aims of Registration.

In order to curb any desire to wander, I have prepared my talk in the form of a paper, believing I can give you the essentials as briefly and interesting as possible.

"Registration" as a subject is unfortunately not one that can develop a visible interest dolled up with pictures, graphs, samples and other accessories now available to speakers. Our "listener interest" must therefore be due to three points of view: ,

1. The effect of the law on each of us as individuals and upon our business.

2. Our interest in advancing the standing of Engineering as a Profession in the public esteem.

3. Our interest in Engineering for qualified engineers which can be obtained at least partially, by legally protecting the profession against intrusion from the unqualified, the incompetent and shysters.

To my mind, the latter point of view is becoming more and more important in these hectic days when anybody and everybody tries anything in which he thinks he can get by.

MISSOURI being one of the eight states, not having a registration law can become the dumping ground of the unqualified, unfit and incompetent alleged professional men of other states, where they have been disbarred from practice.

Registration for Architects and Engineers is not new, having been discussed in Missouri periodically for over twenty years, in fact, attempts at architectural registration in this state date back to about 1899.

Attempts at Registration up to the late twenties were rather fitful; the architects trying to obtain a law regulating their profession and the Engineers trying the same with respect to their own profession.

In 1931, The Engineers' Club of St. Louis believing that the problems of the Architectural and Engineering professions were to a great extent paralleling and of mutual interest arranged a joint meeting between the Club and A.I.A. in order to foster this spirit of cooperation and mutual understanding. Since that time the two professions have been cooperating in our regular biannual attempts to obtain a registration law .

In previous talks I have made, I have briefed the law section by section to indicate the contents of the individual sections, but unless one is thoroughly familiar with the general requirements of State Laws, even this was too much detail.

The Final Revised Corrected Draft of the Proposed Registration bill begins as follows:

"An Act to define and regulate the practice of the professions of architecture and professional engineering; providing for the registration of certain persons practicing or offering to practice said professions; creating the State Board of Registration for Architects and Professional Engineers and conferring certain powers and imposing certain duties upon said board; and providing penalties for the violation thereof."

The Final Revised Corrected Draft has not yet been finally approved by the State Committee on Registration made up of representatives of various architectural and Engineering Societies in the State. The Joint Council of Associated Engineering Societies which I represent in the State Committee has approved the final revised draft in principle, but has one or two more suggestions to offer.

We realize the proposed bill is not perfect. Probably many changes could be suggested and made and still it would not be the ideal, suitable to every Architect and Engineer in the state. We do believe, though, it would be a workable instrument under present conditions. If, in the future, certain desirable corrections are deemed necessary, the law can be amended. Other states have amended their registration laws, some more than once; notably among these are: California, New York, Iowa, Florida and others.

In a pamphlet on "Has Registration of Engineers Accomplished Anything?" Mr. C. J. Ullrich, past president of the A.A.E. in 1929, after a close study of many reports, stated this: "No state that has enacted a registration law has repealed same, nor have any of the states amended their laws to make them weaker. All amendments that have been made were for the purpose of strengthening the law.

The basic reason for the existence of the law is the safeguarding of life, health and property, by permitting only qualified persons to practice our respective professions. Similar laws, in other states have been tested in the courts and found to be constitutional. We took the precaution to obtain legal advice in drafting the Missouri bill in order to eliminate or minimize possible legal attacks from that angle.

Through the efforts of Prof. E. W. Carlton, president of the Missouri Society of Professional Engineers, Mr. Matthew S. Murray, WPA administrator for the State of Missouri, has agreed to act as chairman of the committee that will sponsor the bill in the coming 1939 Legislature. It is felt by all Committee members that Mr. Murray's influence will probably do more for our bill than has ever been done in the past. All of us feel most optimistic as to the success of the bill becoming a law.

Now, I have given you some of the history of registration, the contents of the bill very briefly, the reasons for registration, the organization of the current committee and its Legislative bill depends.

In closing therefore, may I state that the registration law, although affecting some branches of Engineering more than others, is designed in addition to safeguarding the life, health and property of the public to:

1. Provide a measure of recognition of qualification of Professional Engineers by the State and the public.

2. Gives the public a measure with which to differentiate between the lawful qualified members of the profession and those who are unqualified or unfit.

3. Provides the profession means with which to regulate its standards.

4. Places the profession in a position to use the full force of the law to maintain its high standards of ethics, qualifications and practices.

5. Gives a professional man in this State an opportunity to enjoy reciprocal registration in other States. Having no standards in Missouri, at the present time, by which to judge an engineer's qualifications makes our professional men subject to the full brunt of the other states' registration laws.

I am firmly convinced that Registration laws have done more than anything else to unify Engineers into one great body of Engineers as such. When we leave our duties in our specialized fields, we should cease to be electrical, civil, mechanical or chemical engineers and become "Professional Engineers." This thought is responsible for the rapid growth of the National Society of Professional Engineers, and its various chapters. In these organizations we are all Engineers just as the members in the American Medical Association are all doctors. The rules, regulations and tenets of the American Medical Association apply equally as well to a neurologist, obstetrician, surgeon, etc. The same applies also to the members of the American Bar Association as far as lawyers are concerned.

The Missouri Chapter of National Society of Professional Engineers is known as the Missouri Society of Professional Engineers, officially organized in July 1937, has now a membership of nearly 650 and is most active in furthering the interest of registration.

NEWS OF ENGINEERS

Engineer Mitchel Hall of Division Five, Missouri State Highway Department, addressed the senior civil engineering class at the University of Missouri on October 18th. His subject was "Developments in Highway Location Surveys." The talk was made in response to an invitation of Harry Rubey, chairman of the Department of Civil Engineering. Amendment No. 6 and the Missouri Society of Professional Engineers was also discussed.

LOST ADDRESSES

The secretary keeps a close watch on the mailing list and endeavors to make all changes promptly as they are reported. However, it seems that some members have moved without thinking to notify us. Anyone knowing the whereabouts of any of those listed below will perform a service to the Society by furnishing correct addresses. The addresses shown are those last known:

E. D. Brasfield, 316 Jackson street, Jefferson City.
James L. Dickson, 600 E. McCarty, Jefferson City.
Ornulf Fasting, Mo. State Highway Dept., Macon, Mo.
R. B. Hansen, Macon, Mo.
Walter W. Hodge, Rolla, Mo.
M. T. Israel, Mo. State Highway Dept., Chillicothe, Mo.
L. H. King, Fortuna, Mo.
Donald P. McNitt, Room 300, city hall, St. Louis.
Gus Nemser, 6521 Enright ave., St. Louis.
P. G. Parrish, 413 E. McCarty, Jefferson City.
Val Olshewsky, Box 295, Piedmont, Mo.
Wm. H. Owen, Room 300, city hall, St. Louis.
Joe E. Jesse, R. F. D., No. 6, Webster Groves, Mo.
Lewis M. Sperling, 422 W. Sixth, Sedalia, Mo.
W. B. K. Watkins, 112 Sheridan St., Macon, Mo.
R. H. Watson, 2415 Prospect, Kansas City, Mo.
A. B. Watts, National Park Service Fredericktown, Mo.
F. E. Wenger, Dept. of Interior, Piedmont, Mo.
Geo. J. Willier, 618 S. Hanley St., Clayton, Mo.

NEW JERSEY

THE HUDSON ENGINEER

Published Monthly by the
Professional Engineers Club of Hudson County, N. J.

JAMES F. KELLY, *President*
WILLIAM G. CHRISTY, *Vice-President*
JAMES A. FOLEY, *Treasurer*
RAYMOND F. LEUTHY, *Secretary*
HUGH C. CLARKE, *Trustee*

November Meeting, Monday Evening, November 28, 8:00 P. M., at Public Service Auditorium, Journal Square, Jersey City, N. J., Guest Speaker: Mr. Dore Sundland. The Korfund Company, Long Island City. Topic: *"Vibration Control"*—Illustrated. Entertainment: Engineer Russell Wise, Jr., Passaic County Chapter *"A Few Minutes with Magic"*

THE MAN OF THE MONTH

The Hudson Engineer, on behalf of the Professional Engineers Club of Hudson County, N. J., takes pleasure in honoring Engineer Harold T. Anderson for engineering achievement and service to the profession.

Engineer Anderson was born, raised and educated in Hudson County. He graduated from Public School No. 32 and Dickinson High School, both located in Jersey City, Hudson County. After finishing the Technical and Industrial course at High School, he was employed for a period of two years as a drafts-

man with the Safety Car Heating and Lighting Company of Jersey City. He then took up an engineering course in Stevens Institute of Technology, Hoboken, Hudson County, and graduated with the degree of Mechanical Engineer in 1923. He now holds the State of New Jersey License No. 2694, Mechanical Engineer, Structural Engineer, Land Surveyor.

Upon leaving Stevens Institute, he was employed as Assistant to the Chief Instructor of the Laboratory Practice Courses of the New York Edison Company for one year, and the following year in the Structural Design Bureau of the New York & Queens Light and Power Company, New York City. In 1925 he entered the employ of the Safety Cable Company (now a subsidiary of the General Cable Company), and at the time of leaving, four years later, was Assistant Plant Engineer. Later, he was connected with Theodore Ferris, Naval Architect, on the electrical design of a super trans-atlantic liner for the U. S. Lines, and also with the Mutual Chemical Company of Jersey City, on structural design of buildings, both projects being abandoned, due to the business conditions prevailing at that time.

He is now completing his eighth year in the Electrical Department of the Federal Shipbuilding and Dry Dock Company, Kearny, Hudson County, N. J. He had positions of Draftsman, Estimator, and Charge Man successively. In marine circles, Charge Man rates just below Chief Draftsman. He has worked on many types of marine craft, including oil barges, oil tankers, ocean going passenger liners, and destroyers for the U. S. Navy.

Engineer Anderson has been an active member of the Professional Engineers Club of Hudson County and the State Association, having served on various committees. He was Chairman of the Convention Dinner Committee of 1938 and is at present Vice-Chairman of the Entertainment and Reception Committee.

Word has come to the Hudson Engineer that Engineer Richard L. "Dick" Higgins is making rapid strides in regaining his health. Hudson Engineer, for the officers and members of the Club, offer every good wish and hope, that Dick will soon be with us again. His efforts were instrumental in providing the successful 1938 Convention issue of the Hudson Engineer. His active interest in the Club may well serve as an example to all the members. Best wishes, Dick.

CONVENTION ADVERTISING

Engineer George W. Andress, Chairman of the State Association 1939 Convention Committee, has outlined a plan to make the next Convention issue of the New Jersey Engineer a source of profit to each Chapter by taking an active interest in procuring advertisements.

This issue will be similar in make-up to the 1938 Convention issue of the Hudson Engineer. It is estimated that it will contain seventy pages, and will be mailed to each of the 3,500 Licensed Engineers and Land Surveyors in New Jersey. Because it reaches so many engineers and executives in private and municipal practice, it should prove to be an excellent advertising medium.

You have undoubtedly many friends and business interests who would be interested in this advertising, and we ask that you make every effort to contact them in order to secure a successful publication. Advertising forms may be had from the Committee, Engineers Hugh C. Clarke, Chairman; C. Geo Krueger, Herbert Hartman or the Secretary, Engineer Raymond F. Leuthy.

Unemployed Licensed Engineers are requested to send information concerning their experience, education, etc., to Engineer Hugh C. Clarke, Chairman of the Employment Committee, 243 Clerk Street, Jersey City.

MEMBERSHIP

The following new members were accepted at the October meeting.

Full Member:
David P. Canavan,
333 Riverside Drive,
New York City.
Associate Members:
Joseph P. Flynn,
612 Franklin Street,
Elizabeth, N. J.
Herbert A. Straley,
217 Hillcrest Avenue,
Wood-Ridge, N. J.

We welcome you into the Club and hope that you will take an active interest in its affairs.

The Membership Committee, Engineers Norman Newcomb, Chairman; John Denno, John Hodges, Edward Saphore and Otto Scholl, have been making diligent efforts throughout the year to increase the membership of the Club by an active letter campaign. All licensed engineers in the County, who are not members, have been sent invitations to attend our meetings.

PUBLIC AFFAIRS

The Committee on Public Affairs, together with Engineer Hugh C. Clarke, is making a study of the proposed removal of the islands separating traffic on the Hudson County Boulevard.

The parking study made by Engineer Otto A. Knipping, Chairman, has been turned over to the Jersey City Safety Council.

The October-November meeting of the South Jersey Chapter, New Jersey Association of Professional Engineers and Land Surveyors, was held November 4, 1938 at the Court House at Camden, N. J.

This, the first business meeting of the Fall season, was preceded by an informal dinner at Limtonia Restaurant. The Chapter's goal for 1938 is 100 new members.

A guest speaker from the Essex County Chapter addressed the meeting on the subject "The 1939 State Convention and Its Importance To Us." This convention will be held January 13 and 14 at the Robert Treat Hotel, Newark, N. J. The Secretary-Treasurer of the South Jersey Chapter gave his report on the National Convention held in Pittburgh in October.

NEW YORK

The King's County Chapter of the New York State Society of Professional Engineers, Inc. held its November meeting November 17th at the Brooklyn Engineers' Clubhouse.

An invitation was extended to all licensed Professional Engineers, who are not members of the Society, to attend, and Alfred E. Roche, President of the State Society, was present to tell the members about plans for this year's work.

A request has been received by Engineer Roche from Dr. McKee, Dean of Chemical Engineering at Columbia University, for the names of members practicing the chemical and mining branches of the profession. Members were asked to inform the secretary if they specialized in those branches.

James F. Fairman is President of the Kings County Chapter, and George A. Dorfman is Secretary.

PENNSYLVANIA

"SPARKS"

HARRISBURG CHAPTER

PENNSYLVANIA SOCIETY OF PROFESSIONAL ENGINEERS

IRVIN H. GEIGER, *Pres.* JOHN M. HOLTZ, *Sec'y.*

SPARKS FROM THE ANVIL

As this issue of "SPARKS" will be placed in the hands of many Registered Professional Enginers who are not members of the Society, let us talk straight from the shoulder.

This Society is restricted to Registered Professional Engineers licensed under the various States Registration Act, formed into local Chapters, these in turn comprise the State Society of Professional Engineers, and at the present time twenty-two State Societies are affiliated to form the National Society of Professional Engineers. When you join your local Chapter you automatically become a member of the State and National Societies. These form the Engineering Trinity.

The objectives of our Society are purely professional and entirely separated from the technical aims of the Founder Societies.

All of the objectives are being actively engaged in and wonderful progress has been made considering the Society's brief existence.

You individually owe a debt to this particular Society for protecting your professional interests and endeavoring to raise the standard of the profession and increase the remuneration for your services. You may not appreciate our efforts at the present time but our persistent endeavors will eventually benefit you as individual engineers. You owe to the Society your membership to save Engineering for Engineers.

There are no initiation fees and the dues of $7.50 per year includes your dues to the local Chapter, State and National Societies and the national publication THE AMERICAN ENGINEER Dues for the last quarter of the year are $1.88. Your check should be made payable to "Harrisburg Chapter, Penna Society of Pro-

fessional Engineers" and forwarded with your application to the Secretary. The Society needs you now. You may need the aid and influence of the Society in the future.

OCTOBER MEETING

This meeting was held on Monday, October 10, at the Harrisburger Hotel.

Donald A. Cadzow was the speaker.

The NOVEMBER MEETING of this Chapter was held in Bethlehem at the Sun Inn, Tuesday, November 1st.

Robert Hall Craig, Editor-in-Chief of the AMERICAN ENGINEER was guest speaker. He told his impressions and interpretations of the outstanding discussions and events of the National and State Conventions in Pittsburgh, in October.

Engineer Craig is Consulting Civil Engineer, located in Harrisburg, specializing in sanitary and municipal engineering. He is a member of the American Society of Civil Engineers, and spoke of the recent change in attitude of that organization to problems affecting professional status.

Our Chapter was represented at the Pittsburgh Convention by President Pidcock, Secretary Anckaitis, and Treasurer Huthsteiner. They, also, reported on their impressions, at the meeting.

HIGHLIGHTS OF OCTOBER MEETING

The purpose of the recent Allentown meeting was to foster ways and means for a closer relationship between the Registered Architects and Registered Professional Engineers in the Chapter territory. Our speaker, Engineer-Architect Tilghman H. Moyer, member of our Chapter, analyzed the fundamental differences of the two professions and pointed out the way to a closer bond between the Engineers and Architects.

Following the Speaker's address, a general discussion was led by Architects Robert Lange of Allentown and H. O. Spillman of Bethlehem.

NEW MEMBER

A cordial welcome is extended on behalf of the Chapter Officers to Enginer E. Frank Boyer, New Jersey Zinc Company, Palmerton, Pa.

PERSONALS

Under this column, we intend to publish personal notes of general interest. We are asking each and every member to send in notes for publication.

Under the co-authorship of Hale Sutherland and Harry Lake Bowman, a new 402-page book on "Structural Design" was published recently by John Wiley and Sons, Inc. This text is planned for the use of senior students in civil engineering, and deals with the design of structures in steel and timber.

The Philadelphia Chapter of the Pennsylvania Society of Professional Engineers met at the Engineers Club on Thursday, December 1st. Following dinner, there was a discussion about the future of the profession and the contribution of the 1938 State and National convention in Pittsburgh, under the subject "Where Do We Go From Here?"

M. L. Conneen is President of the Philadelphia Chapter, and H. F. Bamberger is Secretary.

OHIO

Reprint from the Cleveland Engineer, published by the Cleveland Society of Professional Engineers

CIVIL SERVICE WINS IN PHOTO-FINISH

In what is probably one of the closest votes ever recorded in Cleveland, the civil service amendment to the city charter today emerged the victor by 477 votes.

The final count was 99,682 for the amendment, against 99,205. The photo-finish was in doubt until late this afternoon. It will place about 6500 more city employees under civil service rules.

Tests will be given all the "new" civil service employees as soon as administration plans can be completed.—*Cleveland Press 11-9-38.*

The November issue of *The Cleveland Engineer* with its editorial on the Civil Service Amendment was mailed to all registered engineers in Cuyahoga County. Many who were closely identified with the Civil Service movement have told us that without the support of *The Cleveland Engineer* the amendment would have been lost. We are proud to learn that our Society was an essential factor in the close contest for the Civil Service Amendment.

FORUM MEETING

A large crowd overflowed Case Club Thursday evening, November 17, to hear Dr. A. B. Denison of University Hospitals give an intimate talk on professional characteristics that are common to any group worthy of being classed as a profession. Dr. Denison's fine delineations led to a lively discussion on professional problems. It is such talks as Dr. Denison's which bring to mind the desirability of recording similar proceedings in the annals of the Society. We hope the time is not far removed when records of that kind can be made.

To U. S. Electrical Engineers, Inc., our thanks for the sound film, "Underground Raindrops," which depicted thrilling views of covered wagon days, the reclamation of the fertile valleys of the West, and the construction and application of specially constructed motors for deep well service.

Again our Program Committee has "clicked" with a well balanced and timely program.

CIVIL SERVICE

Our Civil Service Committee urges the Board of Direction to initiate state-wide action for revision of the civil service laws. The Committee also urges the Ohio Society of Professional Engineers and all its Chapters to cooperate on legislation with the newly formed Ohio Civil Service Council. which has its headquarters and a paid staff at Columbus. The Civil Service Council which represents many civic associations and manufacturing groups. as well as Engineers, is drawing up a model law on Civil Service. A study of model laws of other states and foreign countries has been completed by the Council.

Our Society is a member of the Council. John J. Wirts is our representative and Geo. E. Barnes is alternate representative. (see Board of Direction, Vol. 1, No. 2.)

ADDRESSES WANTED

We are giving below the incorrect, but last known, address of several members. Any member knowing the correct mailing address of these members, please phone John J. Lucas, Secretary, MA 4600.

Thornton Clark Barnes, 4614 Prospect Ave., Cleveland; Grayum E. Bing, 3620 Ingleside Rd., Shaker Heights; Edward W. Findling. 14907 Milverton Rd., Shaker Heights; Myer Gluchov, 942 Copley Rd., Akron; Edward R. Graf, 17520 Fries Ave., Lakewood; William D. Graham, 3179 Chadbourne Rd., Cleveland; Arthur E. Hutchinson, Box 5935, Cleveland; M. Murlub-Sobel. 15776 Euclid Ave., Cleveland.

PERSONALS

James A. Morton, American Steel & Wire Co., has been seriously ill for several weeks, and is still confined to his home, 2125 Overlook Rd., Lakewood. We are pleased to learn that he is making splendid progress and is now able to see his friends. We suggest that you telephone Mrs. Morton, Academy 3026, before calling on Jim so that too many of his friends do not "drop in" on the same day.

Cleveland Society of Professional Engineers—No meeting for December. *Ohio Society of Professional Engineers*—Annual convention, Netherlands Plaza Hotel, Cincinnati, February 8, 9 and 10.

ENGINEER HARING HONORED FOR PUBLIC SPIRITED WORK

Engineer Alexander Haring, Past President of the Bronx County Chapter, New York State Society of Professional Engineers, and retired Professor of Bridge and Railroad Engineering of New York University, was signally honored by the Bronx Rotary Club at a luncheon given by the Club at the Concourse Plaza Hotel on November 22d, when Robert Walmsley, District Governor, presented Doctor Haring with a Testimonial of Appreciation for his valuable work when President of the Club.

The Bronx County Chapter is proud of the public spirited work done by its Past President, a distinguished Engineer, and congratulates Doctor Haring upon his new and well deserved honors.

Minutes of Meeting of Executive Board and Board of Trustees

(Continued from page 16)

We stated that we could not reconcile the acceptance of Land Surveyors in the National Society as Engineers merely because a State may find it expedient to include Land Surveyors as Professional Engineers in its set-up and thus, by definition only, make such Land Surveyors in fact, eligible to membership in the National Society. We argued that an Engineer was such by education and experience and not by merely calling him an Engineer by any act or law. We maintained that Land Surveying was definitely very closely akin to Engineering and that the Land Surveyor should be admitted to membership in the National Society but that to be consistent with our convictions and also with the views expressed by Dr. Steinman and apparently concurred with by those present, the Land Surveyor should be admitted to membership in the National Society as a "Land Surveyor" and not as an "Engineer." We request a revision of the National Society Constitution to make this possible and offer the following motion: "We hereby move you for a consensus vote by State Delegates expressing thereby the opinion of this Convention as a guidance to the Constitution Revision Committee who now has the Resolution at hand for consideration, and instruct that Committee to make its report at the next National Directors Meeting."

Dr. Steinman again replied and due, I believe, to his personal popularity with the members of the Pittsburgh Chapter (who were naturally in the majority) the motion as read above was defeated. We were therefore unsuccessful in our attempt to get a consensus of opinion from the State Delegates present. We feel that those who had agreed to aid us had belatedly been afflicted with "cold feet," at least they gave us no assistance in our effort to secure a vote by delegates. However, had we been able to hurdle the acclamatory vote and were successful in having each delegate called upon by name to vote for or against the question, we believe they would have stood fast and we would have been rewarded by at least having a favorable recommendation passed on to the Constitution Revision Committee.

In fairness to Past President Sheridan, we would say that he very strongly presented the cause of the Land Surveyor in an address to the Convention on Tuesday afternoon. We requested that he vacate the Chair and give a talk in support of our cause on Wednesday, but this he declined to do.

While our problem is not definitely killed, still being in the hands of the Constitution Committee, we have inside information that the Chairman of that Committee is opposed to the admission of Land Surveyors in the National Society. On the other hand we have our own Morris Goodkind as Vice-Chairman of that Committee may recommend the requested revision to the Constitution. If this is done and if, as is anticipated, future voting at the National Society Conventions will be by State delegates and not, as now, by acclamation, there is still a chance to gain our point.

This thought is not advanced too optimistically but as a thought that pressure applied in the right direction might result in a favorable report by the Constitution Committee. In all good faith, should the Constitution Committee report unfavorably, we would recommend that the matter be definitely dropped as a National Society issue.

In conclusion, we are sorry to be unable to make a favorable report but we offer no alibis or apologies. Your delegates worked continuously and conscientiously and to the best of their abilities in an endeavor to follow the directions and wishes of our State Association.

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The N. J. Association of Municipal Engineers, an affiliate of the N. J. State League of Municipalities, invited members of the N. J. Association of Professional Engineers and Land Surveyors to attend its Annual Session at the Hotel Traymore, Atlantic City on Thursday, November 17th at 2:30 p. m. The program included an illustrated lecture entitled, "The N. Y. World's Fair —Its Engineering and Building Aspects," by Wharton Green, Liaison Engineer of the World's Fair and an outline of improved lighting furnished by the State Highway Department, presented by E. R. Sherbaum, Electrical, Construction and Maintenance Engineer.

A similar invitation was forwarded to organizations of the State, interested in the above subjects.

Connecticut Engineers Welcomed to New York World's Fair

(Continued from page 7)

partment and the working drawings are prepared. The Construction Department, which contains in itself an organization of some of the very finest architects as well as engineers, also has a number of other functions which I will not go into now because it would take too long.

Of the buildings that you will see in the process of construction, forty are built by the Fair Corporation, forty-three by American industrial companies; twenty-five by foreign nations and eight large buildings are being built jointly by the Government and the Fair Corporation to house the foreign countries who are not participating. Thirteen buildings are being built by the Fair Corporation to house the States which are not building their own buildings.

We have or expect to have, about one hundred twenty exhibit buildings with a capacity of about one hundred twenty million cubic feet. In addition, we will have an amusement area one mile long. This area is just beginning to take shape at this time.

This is a city which has everything for the convenience and comfort for one million people, with, of course, the exception of shelter.

The distribution system is as big as that of a normal city in the United States.

The probable consumption of energy during six months will be about 100,000,000 kilowatt hours.

Another problem that we encountered here was the problem of lighting. We are using a lot of new lighting that has never been used before.

The foundations and roads are also of unusual interest. There are one million and a half square yards already paved. Most of the roads have only been roughed in, however.

The landscaping is being done by a group under the Construction Department with its own forces. Another thing is the fact that we try to clean up as we go. We had 60 acres of Fair finished last April. Over 6000 trees have been moved in already. There wasn't a thing on this site.

And now, Mr. Grover Whalen has a few words to say to you.

Mr. Whalen:

It is a great privilege for us to have this group of professional men and their families and friends come here today. There is no group that I know of that would be more interested in what we are doing out here at this time. As a matter of fact, you all know of the stories that appeared in some of the engineering journals and other publications about the so called mudways that were to happen to us out here. Due to the skill and experience of the distinguished engineers that we gathered together to do the job here, these problems that may have been present in large or small degree have been solved successfully, to the satisfaction of not only the engineering profession, but also to the laymen and to the public in general.

The engineering work and professional work here, generally, has been of such a high character that it will long remain in the annals of the history of the Architectural and Engineering professions.

I would like to say a word about the Fair itself. This Fair, as you know, is conceived in the first instance as a stimulus to business. We here in New York felt that altho business has been slipping for many years, we had done nothing to stimulate any great business activity.

Many things were thought up that would stimulate business. Finally, we hit upon a World's Fair. Many people thought that New York was not the right setting for a World's Fair, but we were convinced that it was; that the experience in Chicago was such that we should take a leaf out of its books and when we looked around us for a date, we were fortunate to find that we had a precedent. That is, the inauguration of our first president and the adoption of the first constitution. New York served as an historic spot on April 30, 1789 so we chose April 30, 1939, 150 years from that date as the opening date of this exposition.

We interested our own government to do the buildings of the United States Section and talked to foreign countries with the result that 90% of the population of the world will be represented here by their governments. The most harmonious representation that has ever taken place in the history of the world.

The foreign governments are putting up $30.000,000 of their own capital on the Fair site and when you visit the governmental section this afternoon, you will find that almost every country in the civilized world is represented.

Besides that, we have the exhibit of business and industry without which this Fair could not have happened. It is worth comment to mention the individual interest, courage and faith of business and industry in America that is spending $150.000,000 on exhibit space at this Fair. Next year, we shall tell here the story that these great businesses in America have done for the convenience and comfort of the American people.

We welcome you with a feeling of great encouragement that you should have taken time off in your visit to come to see our Fair.

The Economic Status of the Engineer

(Continued from page 3)

The median monthly earnings of engineers after graduation is:

First year $55 to $110; ten years $210 to $300; thirty years $290 to 430; forty years $260 to $360.

Note the drop between the thirty and forty year period. Much could be said with respect to the contributing factors, but time will not permit. He states also that "a recent government report shows that, from 1929 to 1934, earnings of engineers in the respective classifications and age groups declined by amounts ranging from 25 to 70%."

DEPRESSION'S ALUMNI

There was a major unemployment problem in the engineering profession before the depression. However, there was at least a speck of a silver lining in the terrible dark cloud. Members of the profession who thought more of their social responsibilities than their personal advancement proceeded to *not only appoint committees* but to take action, and the results speak for themselves. There are those who would still have us believe that unlimited opportunities are present for the class of 1938. What of those thousands of engineers of middle age and younger men who because of conditions previously enumerated and the economic earthquake find themselves helpless to secure a decent livelihood within the profession? Yes, and those of the classes of 1929 to 1938, what percentage of these engineers have found places in the profession?

Speaking to a graduating class in South Carolina, Bernard M. Baruch called these "the economic casualties of one of the greatest catastrophies that ever blasted this county."

"There is a lost generation," he told the class, "but it is not yours."

However, it is our problem to help these casualties particularly those of the engineering profession. We should take our place in the councils of our communities, states and nation, in order that our contributions to Society will not only be the bare plans and designs of great structures and equipment, but in order that we will have a voice in the policies of these agencies concerning the causes and effects of the adaptation of these plans. It is advocated that we should allocate a generous portion of our time to community affairs as citizens, and collectively through proper organization exert the influence necessary for management of our affairs.

If the health and law departments in your village, city or state, are headed by persons other than a doctor or a lawyer, you are living in an exceptional community. A very small percentage of public works, highway, sanitation, planning, engineering, and other departments requiring the services only an engineer with administrative experience is qualified to render, are headed by engineers. Who but ourselves are to blame for this condition? The medical profession as well as the legal profession, yes, and the general public, would look with abhorrence on the appointment of a bond salesman as health commissioner or attorney general. The speaker personally solicited a chief engineer of a state planning agency, and the gentleman would have been glad to join, but *he was not an engineer!* This is only one of many like experiences. If a professional engineers license law was in effect in this state and a strong state society of professional engineers composed of all members of the profession was ready to give its moral support to the State Board of Examiners in the proper administration of the law requiring qualified practitioners, would not the taxpayer as well as the profession have benefit?

The enactment of professional engineers license laws is another approach to the solution of our problem. Society has a right to expect the profession to certify whether or not persons are qualified to practice. N.S.P.E. proposes, promotes and secures the enactment of professional engineers license laws restricting the practice of the profession to qualified practitioners. The first professional engineers license law was enacted in Wyoming in 1907. The latest law was enacted in Rhode Island, April 3, 1938. There were 27 states having such laws at the time N.S.P.E. came into the picture. There are now 40 states and 4 U. S. possessions having such laws. Due credit should be here given to the American Association of Engineers for the splendid job they did in promoting and securing the enactment of many of the first license laws prior to the time N.S.P.E. was organized.

A.A.E. was adequately represented at the original conferences when N.S.P.E. was organized. There were differences of opinion with respect to the constitutional requirements for membership. N.S.P.E. insisted upon and has maintained its one grade of membership. There is no more reason for non-engineers to dictate or to even remotely influence the councils of the engineering profession than there would be for the law clerks, court attendants or police officers to dictate the policies of the legal profession, or as a better example, for the Labor Unions (who have in most instances done an excellent job in their particular field) to dictate the policies of the Manufacturers' Association.

*Theodore J. Hoover, former Dean of Engineering, Stanford University and brother of ex-President Hoover, made a great contribution in 1935 to the profession in in his studies of the structure of the branches of the engineering profession. He found in his studies of civil engineering, using Am. Soc. C. E. Year Book 1931, that among the 14,518 members, associates, affiliates and juniors, there were 1914 different titles. There were 1315 unique titles in the group, or 69 percent of all the different titles found. Some were social engineers, real estate engineers, sewerage relief engineers, technical engineers, etc. etc. Using A.I.E.E. Year Book 1931 he found that among the 17,327 fellows, members, associates and juniors, there were 2794 unique titles in the group, or 74% of the various different titles found. Among the 3,753 different kinds of electrical engineers there were—yard engineer, acting engineer, accounting engineer, X-ray engineer, etc., etc. There were other studies made by Dean Hoover. However, these studies cover sufficiently the points to which your attention is directed.

If you had a legal matter requiring immediate attention and consulted the American Bar Association Directory and found 4,667 kinds of lawyers, or the American Medical Association Directory, or closer to home, your telephone directory, and found that these two professions had allowed themselves to be sub-classified to this extent, I am sure that you would consider it rather silly. A large percentage of these titles was doubtlessly in lieu of adequate compensation for services rendered. Do not forget that these studies referred to cover only two of the technical branches of the engineering profession. Is it any wonder that not only the public at large but high governmental officials, yes, and deans of universities, at times have little understanding as to what constitutes a professional engineer? All members of the engineering profession should secure a license to practice the profession, whether or not they are exempted under the law, and by so doing they are taking the first step in securing unification of the profession as well as giving the state the protection to which it is entitled.

This applies not only to consulting engineers but to engineering educators as well as engineers employed in public works and in industry. It is only recently that engineering educators have in some instances advised their students as to legal requirements that would have to be met after graduation in order to be admitted to the pro-

fession. All engineering educators are morally obligated to advise their students that there are registration laws in the majority of the states, and that definite requirements will have to be met before they secure legal status as engineers.

"Engineering Education," again received a prominent place in the deliberations at the Fourth Annual Convention of N.S.P.E. held in Pittsburgh on October 17, 18 and 19 of this year when the following resolutions were adopted:

1. "Cultural Preparation for Engineering as a Career."
2. "Policy of N.S.P.E. Concerning Student Enrollment"
3. "Student Guidance"

These resolutions will be published in the November issue of the AMERICAN ENGINEER.

I am heartily in agreement with the previous speaker, Dean T. R. Agg, Director in the American Society of Civil Engineers in his statement that we need an "organization of engineers for economic reasons." I do not agree that this is a job for the civil engineers alone, nor do I agree that the technical societies can continue to function as technical societies and devote the necessary time to this type of a job. It was the pioneer element, the progressive members, of the technical societies who promoted professional engineers license laws; who organized state societies of professional engineers, and these men with some others (small in number) not affiliated with any of the technical societies (but well qualified engineers) who in spite of tremendous obstacles recorded for the profession many worth while accomplishments toward raising the economic status of the engineer.

N.S.P.E. recognizes no line of demarcation in any of the branches of the profession in its program. We are all members of one profession. Credit should be given to the American Society of Civil Engineers for assisting within recent years in promoting professional engineers' license laws. The engineering profession will be benefited not by setting up duplicating agencies to advance the economic status of the engineer but by the leaders of the technical societies recognizing that it was the members of their organizations mostly who organized the State Societies of Professional Engineers and N.S.P.E., and that they are here to *stay,* and further that there is a definite field for both organizations.

Mr. Milton Fisher, representing F.A.E.C.T., affiliated with C.I.O., stated to you here today that we must have an organization to accomplish our objectives. In this we are in absolute agreement. However, it must be an organization of professional engineers, not another organization of a mixed group. I compliment Mr. Fisher on his interpretation of what constitutes professional ethics and practice. Our duty is a dual duty to the client or employer and the State; and if the duty to the former is inimical to that of the latter, our first duty is to the State. However, I am not willing to concede that professional engineers should become affiliated with a union in order to accomplish their objectives. That the professional engineer has been a pawn and subjected to many abuses because of lack of a militant organization in the past cannot be denied. However, we now have a militant organization, and with the proper support of all concerned we can continue the march of progress recorded by N.S.P.E. within the past three years and remain members of the engineering profession.

I wish to thank the officers and the members of the Tennessee Valley Section of the American Society of Civil Engineers for this privilege of presenting the National Society of Professional Engineers program, and it was indeed a pleasure to discuss our problems jointly with Dean Agg and Mr. Fisher.

* Members of N.S.P.E.

National Council of State Boards of Engineering Examiners

(Continued from page 5)

Administrative ability is, therefore, a desirable though not an essential quality; it may be given consideration in estimating experience as qualifying for "professional engineering" practice.

Professional Engineering (as defined in the Model Law) includes ". . . evaluation, planning . . . in connection with any public or private utilities . . . works or projects, wherein the public welfare, or the safeguarding of life, health or property is concerned." It seems reasonable, then, to expect more than mere physical competency.

Economic justification and social utility are within the larger engineering perspective. What bearing has this on "qualifying experience"?

Ability to take this larger view and to coordinate many engineering elements in a single project and to adjust it to the environment outside the technical elements, by looking beyond engineering efficiency to social utility and public welfare, is a quality of our outstanding engineers—a quality to be developed through the years. But if, added to normal knowledge and experience a young man gives promise of a larger outlook on engineering and life, the Board enjoys a double assurance that it is making a wise selection.

14. Are not some refused registration who may be more competent than others who already hold certificates?

Quite likely, and quite properly. Engineering is not static; it is progressive. We are pioneering in a new field. Engineering registration is new. It attempts to unify what has been diverse. Scientific discoveries have led to specialization; engineering schools have multiplied their curricula; engineering societies—major and minor—have many objectives; engineering practice merges with industry and management, and involves the economic and financial. But registration segregates a single group. It has had the double task of transition from the old and also of the creation of something new.

An older past-president of a national society, a preeminent expert, says he could not pass our examination. Probably true; but why should he? He is advisor on large projects, author of treatises on hydraulics, but unfamiliar with present textbooks dealing with things unknown in his early days.

It is hard to realize what has happened since the civil war when there were half a dozen engineering schools and a single struggling engineering society. Scientific methods have largely replaced empiricism and cut-and-try methods; practical men now welcome the once-ridiculed college man; engineering education has established itself and its schools are now accredited—and on a basis of quality rather than conformity; the public now recognizes and legalizes professional engineering.

We may anticipate advancing excellence in registration to keep pace with advance in education, science and technology.

The NCSBEE aims to coordinate the wisdom and progress of our two score boards. Our present task is to formulate as a goal the kind of experience which qualifies for the kind of "professional engineer" we seek. Happily we are not bound by restrictive and rigid rules, but are commissioned to do that which to us is "satisfactory." As we better understand our problem and are better qualified by our own experience, we shall have rising ideals of what is "satisfactory." We must be practical; let us "Go as far as we can see, and then see how far we can go."

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